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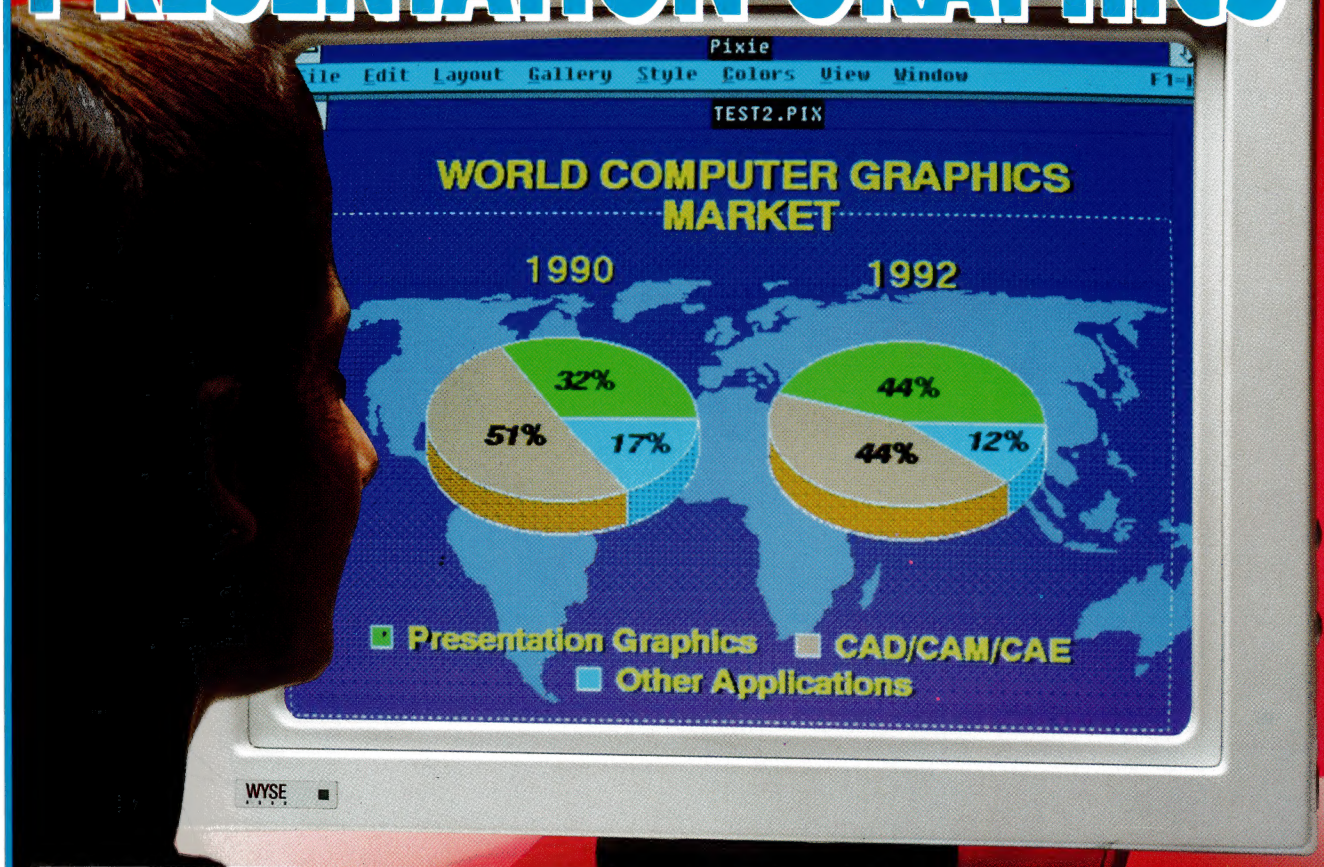

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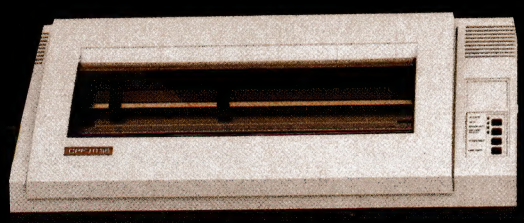

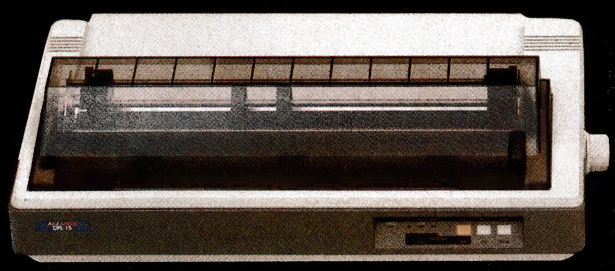

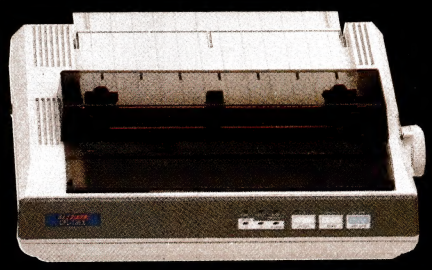

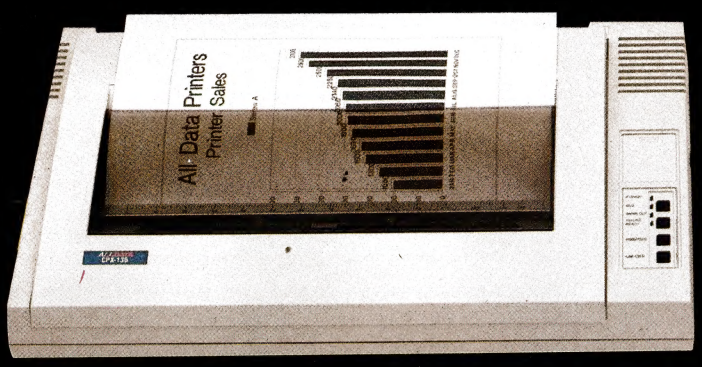

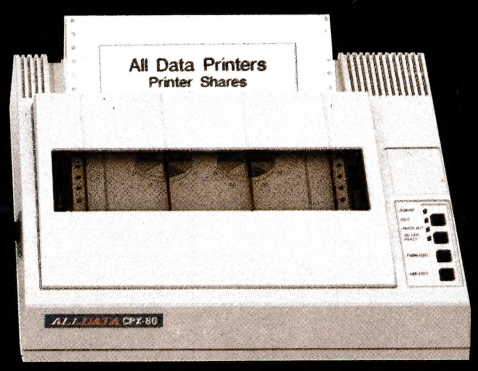

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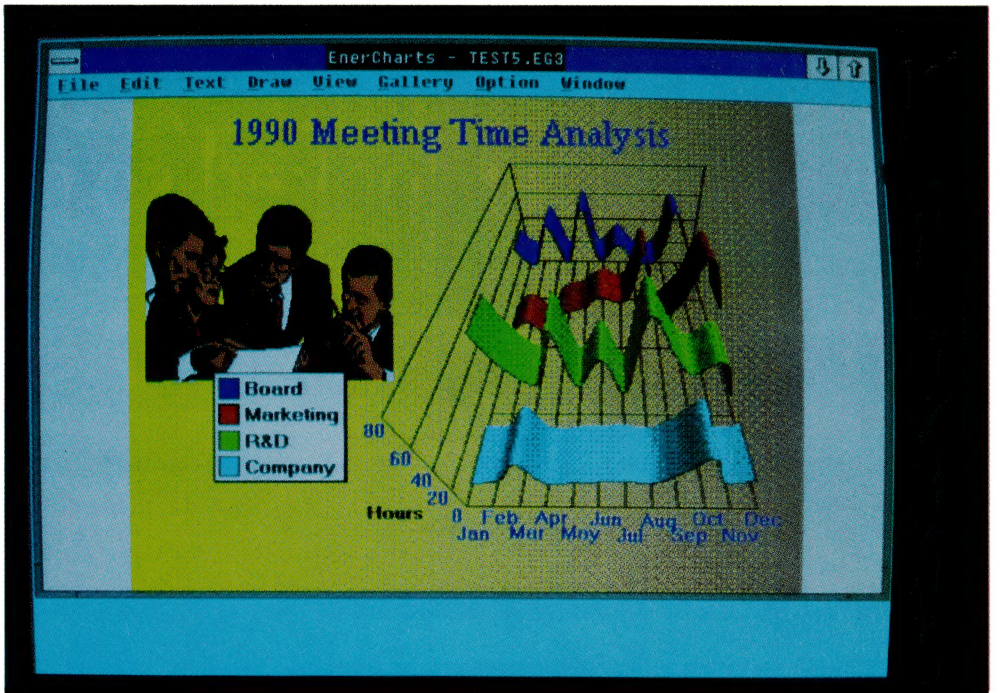

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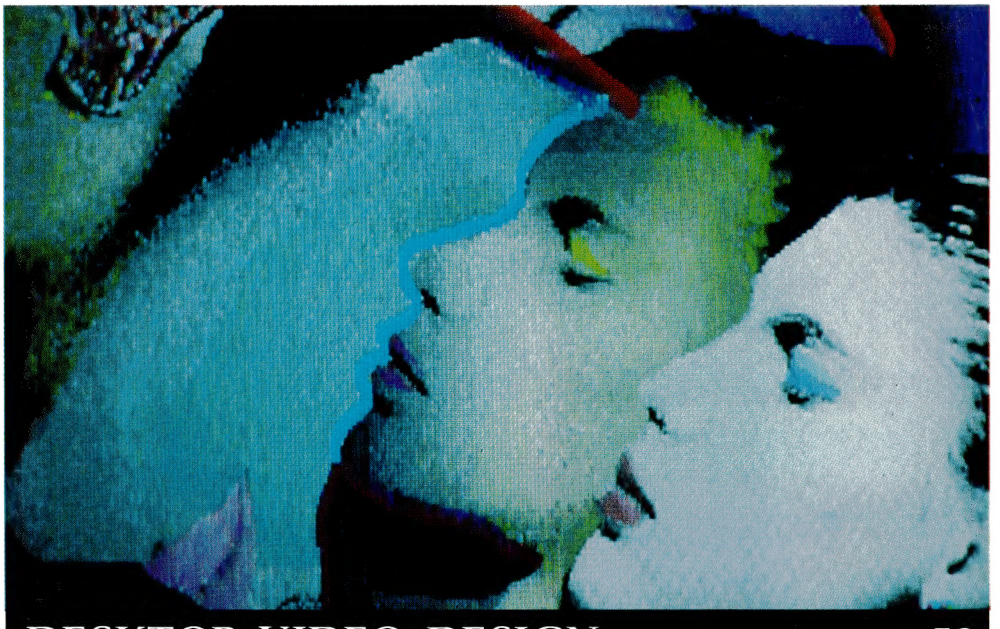

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NEXT MONTH INCLUDES

In August we begin the double-barrelled features that will be our norm in the future. First we look at monitors and how to decide which type is most suited for the application at hand. Then, an overview of physical data security, covering backup utilities, tape drives, Bernoulli boxes and removalble hard disks. Our feature on memory in the May issue was so well-recieved, we are following it up in this issue with 'IBM Memory Management', particularly on how Windows deals with the problem.

This month's cover: Photography by Greg McBean, computer courtesy of The Great Escape, Pixie complements of TIA, operator with thanks to Anna Kad, design by Sally-Anne Silveira.

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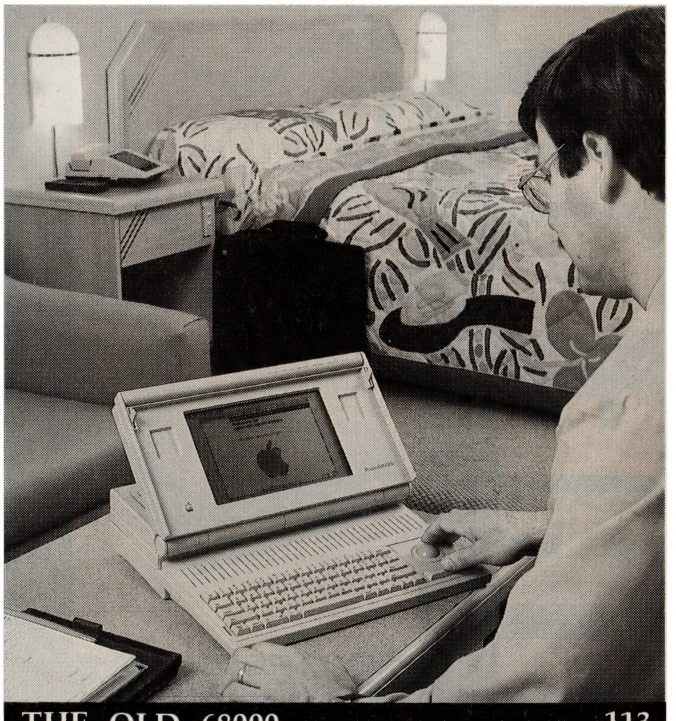

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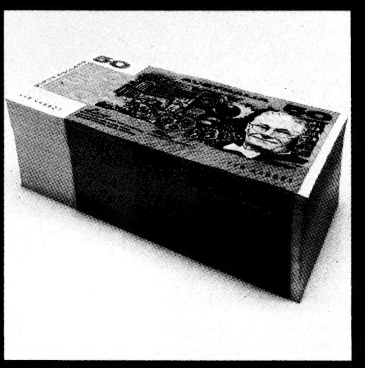

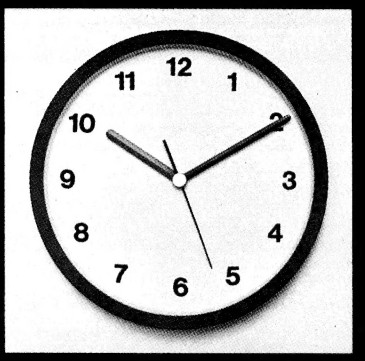

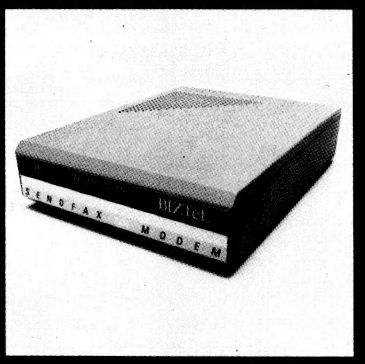

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Industrial Style

JAKE KENNEDY

Happy Birthday, YC!

THIS IS our eighth birthday issue – and we've given *YC* and (you readers) a few changes in keeping pace with the industry. You will have already noticed the 'Industry Updates' and 'Write Byte' columns that have been running for several months; Vern Shrunkle's 'PCs for Blokes' which has been running for a while; and the change in 'New Products' to 'Release Updates' – the last was necessary to differentiate 'releases' and 'shipments' which, as we all know, can be years apart.

In this issue, Mark Cheeseman has started 'Tech Tips', a monthly collection of hardware and software tips from readers, suppliers and our contributors, plus a few of the things we've learned ourselves over the years. If you have any hints of general interest, please send them in so we can pass them on – we are particularly looking for tips on the latest releases of software, and advice of any bugs or undocumented features you've found.

In our August issue, Mark is also starting a column of his own on communications. While he will be covering all fronts in that broad field, the emphasis will be on networking, which is set to become the communications topic of the '90s. (Right now Mark is in the middle of setting up a Novell network here in our office – he'll bring you the story on that plus a comparison of major LAN types in our October issue.)

Windows 3.0 has caused a number of gurus to change their attitude toward the future of Dos and OS/2 – most now see a much brighter future for the old workhorse (see Stewart Alsop's comments in 'Industry Updates': he thinks that even Apple will benefit from the continuing development of the Windows environment). Here at *YC* we feel that Windows 3.0 is the most significant development in the PC world for some time, rating with the acceptance of Dos as a *de facto* standard. John Hepworth think so, too – and he has agreed to cover the emerging Windows world in another new column starting in the next several months.

Still another emerging technology is that of compact disks, in all of their manifestations. We've asked Stewart Fist to continue his 'Light Fantastic' series on the history, applications and standards of this 600Mb world. He will be contributing an (initially) occasional column to keep us all abreast of the rapid changes that are unfolding there.

July 1983

The development of the [ergonomically designed] furniture was inspired by the installation of computers in the ATO, which showed that poorly designed desks had contributed to an injury cost exceeding $1.6 million annually – ***News, p10.***

Apple's [advertising] tack is that we all know children can use computers, but here is finally a machine that makes it simple for adults – ***News, p16.***

As you can see, we have prepared ourselves for the '90s (and our next eight years). But – this is *your* magazine and we need to know your thoughts. Too often we find ourselves hearing the views of the 'other side' from manufacturers, dealers, suppliers and PR companies. All those insiders have quite a different view of the industry than the users themselves. Please drop me a line and tell me what you want in a computer magazine that we've not offering now. Of course, we are always on the watch for application stories from readers, notably those that can serve as a guide to others. If you think you have a tale to tell, give Mark or myself a call to discuss it.

Finally, to the four-million-plus readers who've supported us during the last eight years: Thank you! We hope you've had many productive returns from these pages and will be with us in '98.

8th Annual Index

FOLLOWERS OF YC over the years know that this is the issue in which we usually publish our annual index. Unfortunately, last-minute production problems meant we were unable to have it prepared in time. If you would like a copy of our *YC's* 8th Annual Index, please write, call or fax your name and address and we will send one to you post-haste. □

Future Features

IN ADDITION to our application stories, news and other informative pieces, each month we present features designed to keep you informed about the world of personal computing –

September 1990
Choosing and implementing a network and ***Entry-level PCs.***

October 1990
Communications hardware and software, and on-line services.

November 1990
Computer graphics and ***RISC-based machines.***

Application stories – particularly those with the same theme as our features – are always welcome. Because of lead times, material must be received at least eight weeks prior to the month of intended publication. Please address editorial enquiries on our features to Mark Cheeseman, (02) 693 4143, and advertising enquiries to Mark Wilde, (02) 693 6646.

AMERICAN GRAFFITI

HOWARD KARTEN

Presentation graphics

LOTS OF PEOPLE are *just* beginning to get into the presentation graphics software they got for Christmas. This is a potentially hazardous enterprise. In the US, for example, some early users are reported to have realised only later on that they should have taken some complementary courses which would have helped them to be more efficient users. (The US, as everyone knows, is the land of the productivity obsession, and we're only just beginning to recover from the disastrous setback to productivity that occurred as a result of having to teach employees how to use the company email system, departmental LAN, company-standard word-processor, and so on.)

One of the things I've observed about the world is that people who eventually achieve some kind of prominence often seem to be good at persuasion. This doesn't 'prove' that it's a critical or even important skill, and it's by no means a systematic, scientifically defensible observation; but as my grandpappy once said, 'Boy, you'd better think twice before thumbing your nose at it'. Thus, anything that will help you present information better is important.

But think about it for a minute, and it becomes clear that presentation graphics is really the camel's nose in the tent. It's an incredibly powerful tool, and therefore, one that should not be unleashed lightly.

Why is that? First of all, like any powerful tool, it requires time to learn and master it – you'll finally have to master those arcane kinds of graphs which may have scared you off as an undergraduate, and that takes time. And, when you're already under pressure to make a big pitch to someone, there is no time to start learning this stuff. Also, there is little motivation to learn it when you don't have a presentation coming up, but if you *do* learn it under those circumstances, you won't remember how to use it by the time that becomes a reality!

Secondly, presentees will realise in a short order how easily presentors can rework their charts if the presentees request it, and thus presentees are much more likely to request additional work, such as different kinds of charts, or different artwork. (In the old days, reworking meant tying up the corporate art department, but now, it's only your time that's used, so who cares if you don't get home till midnight?) Therefore, using presentation graphics may well mean *more* work, not less!

Thirdly, despite how easily presentors often think they can pull the wool over the eyes of presentees with fancy charts (the old 'baffle 'em with BS'), presentees didn't get into the throne by being stupid or gullible. The fact that 'it came from the computer' is no longer enough to put everyone into a mindless trance. In fact, given the reputation computers are developing in some quarters, the fact that 'it came from the computer' may simply make an audience of skeptical tightwads that much more suspicious!

One of the things I've observed about the world is that people who eventually achieve some kind of prominence often seem to be good at persuasion.

Fourthly, recall the old adage that 'a little knowledge is a dangerous thing' – the operative word is 'little'. Computers are such powerful tools that it is easy to delude oneself that presentation graphics software by itself is sufficient to turn even a mumbling techie into a charismatic, smooth-talking politician. It's naive to expect to sell an idea by relying only on a multi-color screen and a fast disk.

To remedy these potential drawbacks, and really use presentation graphics effectively, will require some additional coursework. (This is the software equivalent of 'batteries not included', I suppose.) Here is a listing of some courses that might help you get the most of your presentation graphics software.

Sales 1 – Salesmanship For The Digitally Inclined. We are all salespeople, all the time. Technically-inclined folk often act as though they believed that information alone is sufficient to persuade. This course covers the fundamentals of smiling (when and how much), finding your prospect's anxieties, graceful backpedaling, and applying solvents to dissolve the prospect's resistance.

Acting 3 – Aplomb in Adverse Digital Disturbances (lecture and lab). With old-style presentations, you knew pretty much what the worst-case scenario was: your graphic artist absconded with the company president's wife, your data, and your work-in-progress. With presentation graphics, an unnoticed power surge could change the data and shoot down your whole case without you even noticing it until the 'moment of truth'. Or, the hard disk containing the only set of your data could die just as you're about to transfer it to floppies. This course will discuss ways of doing a presentation with no graphics or data whatsoever. The prerequisites are Sales 1, and a doctor's note attesting to the student's good health.

Managing the multimedia presentation 101 – things move fast in the computer world. The latest buzzword is 'multimedia', that is, using inputs from different sources, outputting in different formats and channels (audio, video, animation, and so on). By September, or October at the latest, no presentation will be complete without the obligatory multimedia show. This graduate-level course will help students learn to select inputs and tailor output formats to the type of material being presented and the audience.

Dealing with a hostile audience (practicum and seminar for advanced students) – how to counter the five objections senior management is most fond of: discerning who in a meeting to suck up to, how to deal with a threatened budget cut, and how to handle a senile managing director. How to handle instructors such as the faculty and staff, and visiting guest lecturers, including ex-student demonstrators from the university.

Christopher Columbus

I HOPE no-one gets the misimpression that 'oh, there's Karten, bellyaching as usual'. I really think presentation graphics has enormous potential to make everyone's life easier. Just imagine what the situation would have been if Columbus had had access to presentation graphics software. Here is a little-known fact of history – prior to making his pitch to Queen Isabella and her boyfriend for venture capital, Columbus detailed a couple of his subordinates to do a good presentation, complete with flip charts and detailed individual booklets for everyone in the audience. This was a 'few' years before the Xerox machine was invented, so you can imagine how hard they worked. (As in any business, the successful efforts of Columbus' throne-room presentation team were rewarded.)

If he'd had some good software for doing presentation graphics, who knows what Columbus could have achieved? Perhaps he could have pried loose enough funding to discovered one or two continents in addition to North America. Maybe he could have even discovered Australia.

It's naive to expect to sell an idea by relying only on a multi-color screen and a fast disk.

If you want to read an exciting, highly enlightening book, get hold of Clifford Stoll's *The Cuckoo's Egg*. Stoll is an astronomer-turned-computer security expert, and his book details his experiences trying to identify a hacker who was breaking into a system which Stoll was in charge of.

It all started when Stoll was puzzled by a $0.75 discrepancy in billing in his computer. Like any good scientist, Stoll was puzzled by his inability to explain the discrepancy, and in short order, he traced it to an intruder in his system.

Working with the FBI, other US government agencies, and the security departments of some telecommunications outfits, Stoll eventually traced the hacker to Germany, and found that he'd used some exceptionally clever, round-about ways of breaking into computers around the world. In recounting his efforts to identify and stop him, Stoll provides a considerable amount of technical detail about computers and networks. However, it never threatens to take over the book and never becomes oppressive. Instead, Stoll's straightforward story contains quite a number of valuable insights on several subjects, and they're made much more valuable by the fact that they are almost by-products of the book, and not its main points. For example, Stoll's story is an excellent first-hand illustration of how a scientist works, thinks, and reasons. The book also contains some excellent material showing how bureaucracies operate – what moves them, how they do and don't cooperate with other bureaucracies and with outsiders, the impediments they face, and so forth.

The book is published in the US by Doubleday, which has an office in Sydney, however, it has not been published in Australia as yet. □

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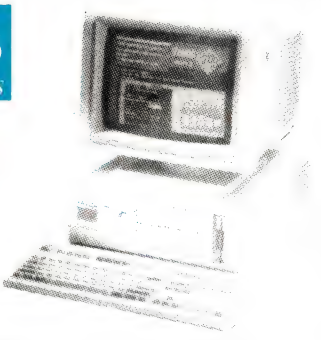

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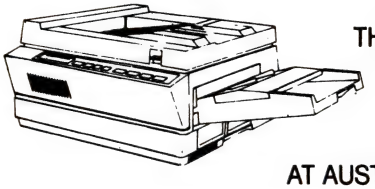

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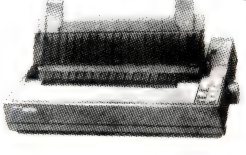

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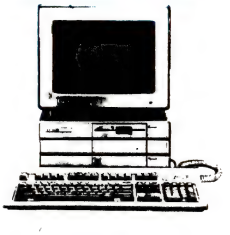

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CANBERRA COMMENT

WILLIAM OLSON

Robots, defence and networks

IMAGINE ASKING AT a government enquiry counter and then finding out that you're being helped by a robot. Not an industrial robot – a life size public servant type robot dressed up for the part. While all this may seem incredible, there is an Australian company building computer controlled animated life size figures that are able to gesture and talk realistically.

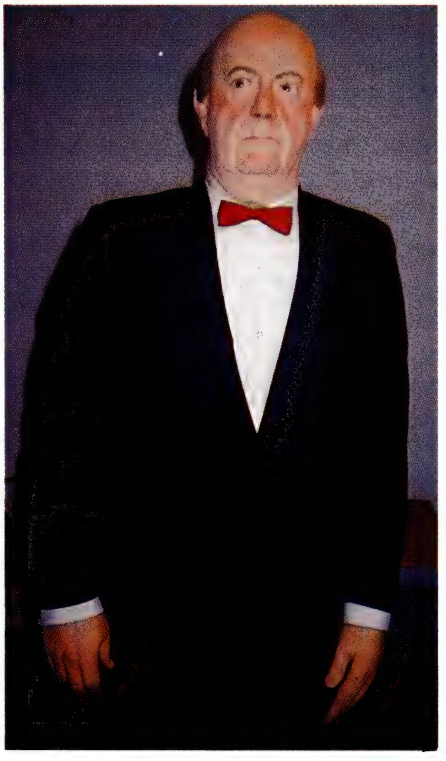
Sally Animatronics managing director Greg Eccles, says that while he was at a computer trade show in Canberra recently, some federal government departments expressed interest in the robots. Exactly, where these departments are considering using the robots is a mystery. However, there are some government projects which could make serious use of animated robotics, and Telecom have already used a Sally Animatronics robot in their trade displays.

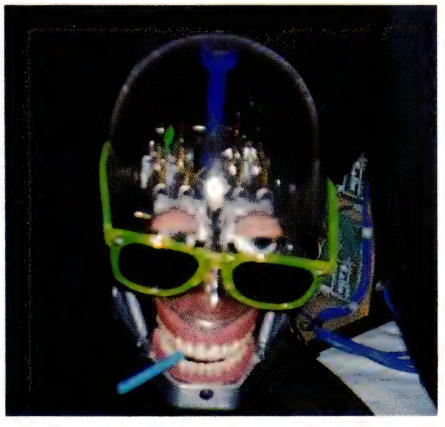
The Australian Museum project, which has been temporarily delayed since the completion of Parliament House, is one ideal site for the Sally Animatronics robots. Eccles says that when robots are used in displays instead of real people, the audience, particularly children, are able to more easily remember any information about that particular display.

Sally Animatronics built a robot figure for the Fujitsu display at Expo '88, and has also made eight robots for the old Dubbo gaol display in NSW, plus one for the Victorian Geelong wool museum.

The robots have to be sturdy and functional, and the one at the Fujitsu display at Expo '88 operated 12 hours a day for six months without failing using a system of compressed air with valves to operate it. Eccles says that this gives a much smoother movement than using electric servo-motors. 'For example, when you move your hand to scratch your chin in real life, your hand slows down a fraction of second before it touches your chin. This is what makes human movements smooth and most robotics jerky. With compressed air, it is far easier to simulate that smooth movement.'

A small computer using a standard Z80 8-bit processor controls the air valves. While this may seem primitive by present standards, it does the job. The computer is part of an RA Gray entertainment control system which incorporates controls for light and sound. A complete show can be run in real time with the control console picking up its data code from a half inch videotape.





Sir Edward – one of Sally Animatronics' life-like robots that can speak from a pre-recorded tape or used live with a microphone – has 28 movements: five for the eyes, four for the head, six for the shoulders, six for the arms and hands, and the body can be programmed to sit, stand or bow. At the bottom, you can see inside Sir Edward's head.

The robots are able to speak from a prerecorded tape or can be used live with a microphone, and the lips are synchronized to match the words. Eccles says that one of the popular uses for the robots is at convention dinners where they sit in with the guests and speaks to them from a hidden microphone. The robots can be hired out or even purchased. A New Zealand shellfish character called Magic Mussel cost about $50,000 to make and was purchased by the New Zealand fish authority.

The computer program for a character called Sir Edward has 28 movements. There are five for the eyes, four for the head, six for the shoulders, six for the arms and hands, and the body can be programmed to sit, stand or bow.

These robots seem like the ideal standin for bored politicians who cannot make it to the parliamentary chamber when the bells ring.

Defence computing research

DEFENCE RESEARCH establishments are now seeking financial backing and thus do not want to keep all their projects a secret. A defence computer research division is now established at Canberra's Fern Hill technology park with the aim of analysing command support systems. Cliff White, head of the group, says that his division is working on high-level command support systems for our defence forces. 'Command support works with real time problems faced by commanders in the field. We will be working here with a research command and control test bed to develop prototypes.'

The research group is hoping to eventually develop common command interfaces that are suitable for a high stress environment. White says that defence command centres operate with vital battlefield information that must be processed as quickly as possible. One of the main computer tasks is for strategic thinking, allowing a battlefield commander to have a clear pic-

ture of all the options he has available to him, and the time scale for those options.

Within 12 months the command support systems group expects to have 20 scientists and engineers working with four defence force officers on a command support software. The hardware used will be Sun workstations and VAX minis, together with some Macintoshes and PCs, and the system will have links to mainframes in other states in Australia. Local computer companies are being invited to participate in the research as the need arises.

Computer professionals still hard to find

ADVICE FOR the young who are contemplating computing is – do! The latest numbers from the Department of Education, Employment and Training (DEET) suggest that the computer business is still expanding faster than the number of workers needed to run it. The latest DEET report on Australia's needs shows that there are about 45,000 full-time computer people in Australia. Of these, 80 per cent are men with 95 per cent employed full-time. Only about five per cent are self-employed which is surprising when you consider all the consultants buzzing about the place.

Advice for the young contemplating computing is – do!

Demand for computer professionals is tied between finance, property, wholesale and retail trade, community services, and public administration and communications industries. In the last five years, employment in the computer industry has averaged 16 per cent growth per year. Last year, the increase was 12 per cent. Apart from experienced computer people, the demand for new graduates is strong with surveys ranking computer graduates the most employable graduates along with accountancy and electronic engineering.

The DEET report states that there is now such a large installed base of computers in Australia that the demand for graduates is recession proof. For example, there was still a strong demand for computing professionals despite the 1987 stock market crash. The report expects a high demand for skilled computer workers to continue until the year 2000.

While employers prefer university computer graduates, only about 50 per cent of those now in the industry have degrees in computer science. Other graduates have diplomas from one year courses, while others have associate diplomas from TAFEs. The report says TAFE expects to be an increasing source for middle range computer workers.

The report also notes that we should worry about the low numbers of university graduates continuing to higher degrees in computing – last year, the number was only 3.6 per cent. The federal government has increased computer places at universities by about 900 each year since 1988. And, the report says that while this is a good sign, employers in the industry need to provide more support for new graduates.

Relying on networks

MORE THAN 700 terminals are now on the Ditac network with further expansions possible in the near future. John Beever, assistant secretary for corporate information, explained that the Ditac network was a result of the department's determination to have everything 'hanging off the network. Our next step will be to work towards identical terminal emulation so that our offices in each state capital are working with the same screen displays,' Beever said.

Using a basic Novell network Ditac has allowed both a Wang VS 5000 and a Prime 6350 to join the network. Beever says that the Wang link with the Novell Net was a first in Australia.

The network also shares 500 ATs plus about 150 XTs and some 50 assorted laptops. Most of the laptops are Toshiba models, including some top of the range T5100 and T5200 models.

Beever said that the network used Orion software for system management. 'Other software now used includes Multimate Advantage II for wordprocessing, Ventura and PageMaker for desktop publishing and dBase II, III and IV plus Lotus for spreadsheet work.'

Ditac sees its network eventually using one standard platform across the organisation. The network services the needs of all 800 Ditac employees. The company is expanding its internal computer training programs to ensure that all employees are able to make the best use of the network. This will also include an expanded use for electronic mail. □

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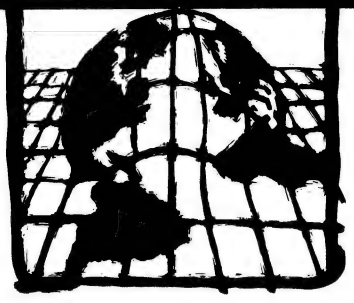

Compaq questions distribution

Compaq Australia managing director, Ian Penman, strongly criticised IBM and NEC for moving into areas where they sell directly to end-users, or own the dealerships: 'IBM is attempting to acquire equity in the dealer channel which will eventually result in control by the vendor of previously independent dealers and VARS [Value Added Resellers].' Of NEC he said: '[NEC] announced it was going to promote and deal directly with corporate clients. [Industry Updates, May.] These strategies don't provide buyers with objective, independent advice or comparative information in selecting a system,' he said. PC distribution methods was one of the key topics at Compaq's two-day forum which opened the week after he made his comments. □

50MHz Mac

NEWCO TECHNOLOGY, the recently formed subsidiary of Wells American, has announced the availability of its first product, the MegaMac CPU Performance Extender. The MegaMac, a self-contained device with its own memory, processor and system power supply, increases the CPU clock speed of any Macintosh II or SE/SE 30 to which it is connected to 50MHz. The unit also features an internal NuBus/Processor Direct expansion slot and a compartment for up to two optional disk drives.

The MegaMac connects to any Macintosh II model via a single slot adapter card that plugs into any of the NuBus expansion slots featured in all Macintosh II models. A separate 'processor direct' interface cable is used to connect the device to a Mac SE/SE 30. The unit contains a Motorola 68030 50MHz processor coupled with 64K of 12 nanosecond write-through caching memory and up to 64Mb of on-board, high speed dynamic RAM (random access memory).

A NewCo designed SCSI (Small Computer Systems Interface) bus accelerator is also built into the unit and NewCo says that this proprietary component will deliver a significant performance advantage over the SCSI interface used in current Apple Macintosh hardware. The firm further claims that the MegaMac delivers performance markedly better than any of Apple's Macintosh models, including the IIfx, and any existing accelerator boards on the market. □

Anti-virus comms

THE WORLD'S first viral-screening telecommunications program has been unveiled by Hilgraeve, a US-based personal computer software publisher. Hyperaccess/5 offers antivirus filtering and scanning technology which detects viruses by searching files for signatures (patterns of bytes) unique to each virus, using the same set of signatures as the IBM Virus Scanning Program. This list enables Hyperaccess/5 to detect the Jerusalem, Datacrime, Cascade, Austrian, and Icelandic viruses, plus 64 other viruses known to be in circulation.

'Whether downloading files from electronic bulletin boards or exchanging floppy disks with an associate, users get automatic protection against known computer viruses without taking extra steps or altering their work routine,' explained Hilgraeve president Matt Gray. Files are searched on the fly as they are received by modem, or copied from disk to disk. If a virus is detected, the program presents a warning message to the user, and allows him or her to abort the download. If there is no response after 30 seconds, the transfer is automatically aborted and a message is left in the user's log file. This means that the virus protection works even if the software is programming to auto-dial and automatically logs onto a system to capture a file.

At press time, we were unable to determine if the software works with compressed files – if you are interested contact Robin Shepherd at Hilgraeve, Monroe, Michigan, 408-354-2441. Both OS/2 and Dos versions are packaged together and the price is US$199 but discounts are available to holders of earlier versions. □

Xerox/Apple suit dismissed

US DISTRICT Judge Vaughn Walker has completely dismissed a suit Xerox brought against Apple Computer in December, 1989, over its graphical user interface. Xerox, which charged Apple with copyright misrepresentation, not copyright violation, had contended that the Macintosh's distinctive icon and window-based screens originated with the Star interface created at its own Palo Alto Research Center (PARC) in the 1970s. The company sought $150 million in damages. Five of the six counts were dropped by Walker in March. The judge has

IBM going downmarket?

WITH RUMORS abounding that IBM will re-enter the home computer market this summer by introducing new products to sell for under US$1000, many computer industry analysts spent the last few days speculating on the ramifications of this move. The rumors have been growing in the Wall Street community since James Cannavino, president of IBM's Entry Systems Division, told analysts at the April meeting that the company sees the 90 million US households as the company's largest potential market. 'New users, people who've never seen a computer outside of a video arcade, make up most of our potential market.'

US analysts feel that such a move is indicative of IBM's desire to be a major part in all areas of the computer world. IBM withdrew from the home market in 1985 after its PCjr, introduced in 1984 at prices ranging from US$700 to US$1300, was generally unsuccessful.

Chase Investors vice president Jim Hansel, while not commenting directly on the possibility of IBM's market entry, told Newsbytes, 'I think that any computer company attempting to successfully enter the home market will have to sell an integration of entertainment equipment and computers. There should be no duplication of function. One way of looking at it is to examine the habits of most students now going off to college. The equipment they most often take with them are a stereo, a television and a computer. There should be no reason for them to have to squeeze two video screens, two storage devices and all the rest into small dorm rooms. They should all be integrated.'

Rick Martin, Prudential-Bache analyst, was quoted as speculating on the specifics of the possible IBM entry, saying that the system is likely to start at a market price of US$750, be based on Intel's 80286 microchip, contain at least a 30Mb hard disk and perhaps have software such as Microsoft Windows' graphical user interface built into read-only memory.

now dismissed the final count. Xerox reportedly intends to appeal the dismissal. □

Apple System 7.0 late

APPLE COMPUTER has announced that System 7.0 software will not be shipped until the end of the year, six months later than Apple's last projection. The information was buried in a document highlighting the 1990 Apple Worldwide Developers Conference, which was sent to reporters, and reads, 'Apple expects that System 7.0 will ship to customers around the end of the calendar year.' Apple developers in possession of a System 7.0 development kit, the release said, will also be updated on the targeted System 7.0 ship schedule. □

Change in Apple's direction?

INDUSTRY ANALYST Stewart Alsop, speaking to New York City's Big Apple Users Group (BAUG) said that he feels that Apple will, in the next year, be rather dramatically changing its direction in the marketing of computer systems. Alsop, the editor and publisher of *P.C. Letter – The Insider's Guide To The Personal Computer Industry*, said: 'Jean-Louis Gassee's emphasis was to make better, not cheaper systems. Hence, the Macintosh progressed in almost a straight line from the Macintosh Plus to the Macintosh IIfx. John Sculley, who is now taking direct charge of Apple's product development – a move that has Apple insiders referring to him as 'Jean Sculee' – is stressing a much broader base of systems with emphasis on the low cost units that can be sold to the educational markets in the US$800 to US$1800 price range and to businesses from US$2500 to US$3500.

He added that both Sculley and Michael Spindler, Apple's new chief operating officer, have been stressing Apple's need to sell more Macintoshes – a need that 'has Apple committing to both reduce its prices and its own profit margins.' Alsop also sees Apple attempting to accelerate its development of system software and utilities by entering into licensing agreements with third party developers. 'It looks like there is a real breaking down of the tendency to look down on NIH (not invented here) products. This interest in licensing may even lead to Apple licensing its technology to another manufacturer – a move that would have been unthinkable even a year ago, but could aid in cementing the Macintosh as an industry standard.'

Alsop further stated that he saw the release of Microsoft's Windows 3 as a long range benefit to Apple sales. 'The situation now in buying decisions is MS-Dos vs Macintosh and it is a battle that Apple loses more than it wins because of people's reluctance to change. Now, with the introduction of a Windows system that performs, the ugliness of Dos systems will be more apparent and users will look elsewhere. There will be more Windows sold than Macintoshes but Macintoshes will sell more than they have before.

Later, speaking at New York City's IBM User Group, Alsop said that he feels that Windows 3 will capture a major portion of the personal computer market. Admitting that this projection is a major revision from his previous estimates which saw OS/2 as dominating the future of user interfaces, Alsop says that he now expects Windows to capture 45 per cent of the PC interface market and OS/2 to wind up with only 5 per cent of the market, a figure well below his original estimate of 40 per cent.

Alsop also said that he changed his view of complex operating systems such as OS/2 to now regard them as 'fascist; by that I mean operating systems that run the computer as they want to rather than as the user wants to. To manage the multi-threading and multi-processing of OS/2, the operating system must have control of the machine at all times. What I think users really want is an interface like Windows or the Macintosh where the user has the availability of launching and keeping a number of programs in memory at once, but actually only runs one at a time.

'OS/2 and Unix will be fine as networking operating systems. But I no longer believe that any operating system designed for complex environments will ever become a mainstream system,' he added. Alsop also increased his forecast for the Macintosh percentage of the personal computer market from 15 to 25 per cent. □

Computer law by the book

***'It is increasingly important for people in the indusrty to know their rights and take steps to protect them. Legal issues of copyright and computer related litigation are sure to surface time and time again as computers become ingrained into our social, economic and cultural activities' – David Strong, managing director of Apple Australia of the launch of* The Legal Environment of Computing.**

THE LEGAL Environment of Computing, a book on many aspects of computer law in a number of countries was released worldwide on May 16. The book, written by Australian lawyers Peter Knight and James FitzSimons and published by Addison-Wesley, $32, is aimed at those who work in the computer industry, or who have an interest in personal computers. Included in the book are examples of the principles involved in the various aspects of computer law.

Topics covered include employment contracts; ownership of software via copyright law; negligence; anti-competitive market activities; and control of information stored on databases. The keynote speaker at the Sydney launch was David Strong, managing director of Apple Computer Australia.

In August,* Your Computer *will publish Chapter 3, 'Copyright', from* The Legal Environment of Computing *by Peter Knight and James FitzSimons.

20Mb floppies!

THE 20MB DISKETTE drive Citizen Europe showed recently at the SICOB Comdex/Europe trade

Help for large projects

SOFTWARE HOUSES and other major organisations will soon be able to call on a team of information technology (IT) professionals, should they find they have bitten off more than they can chew. The Institute of Information Technology, a joint venture between the University of New South Wales and IBM, has established IIT Services to provide computing and IT services needed to carry out large projects.

The Institute claims IIT Services will provide a synergistic relationship to those organisations who require assistance at peak times, or undertake work that does not make the most of their employees' skills. The professional input will be provided by graduates and staff of the University of NSW and other IT professionals and practitioners.

IIT Services is yet to be fully staffed and is on the lookout for suitably qualified 'teleworkers' who can work from home or at the client's premises, and can cope with working at least 20 hours a week without peer support. Programmers, programmer analysts, project managers, estimators and database specialists with more than two years experience are needed. The Institute is confident that IIT Services will be able to offer clients 'flexibility and responsiveness, with project teams specifically designed for the needs of the organisation'. Each team will be led by a project manager, and IIT Services will ensure that high quality is achieved by making available the 'special management skills needed to support teleworkers'.

show in Paris, France, and others like it, could be standard equipment on some PCs 15 months from now, a Citizen official said.

Dean Knowler, a sales executive in Citizen's European office, told Newsbytes there are 'quite a few redesigns going on' to incorporate drives like Citizen's IFDD 20 in PCs. He admitted, however, that 4Mb diskette drives will probably catch on first. The market is still 'a bit unsure' about the 20Mb format, Knowler said.

Citizen showed the drive for the second time in Paris, having displayed it at the recent CeBIT exhibition in Hannover, West Germany. The drive is just on the trade show circuit at the moment, Knowler said. Volume availability is scheduled for early in 1991. As well as the 20-megabyte diskettes, the inch-high drive can read and write standard one- and two-megabyte 3.5-inch diskettes. □

Credit card from Microsoft

MICROSOFT Australia is offering credit cards to members of its Communique club. Although special interest group credit cards are common in the US, the idea is uncommon in Australia, but Microsoft expects that a good percentage of those offered the card will accept. The offer is being done in collaboration with the ANZ bank, and includes discounts on many consumer services such as travel. It does not offer any rebate or purchase discount privileges for routine use.

The Communique club has been operating for a year, giving members a discount of at least $30 on all Microsoft upgrades, plus access to member-only specials, newsletters and other incentives. In addition, members and dealers are brought together through the creative use of mailing list, sponsorships and so on. □

Epson clips cost

EPSON HAS closed its Victorian state technical support center with the loss of a number of jobs and reduced the buffer stock of components held in regional branches for use by authorised service agents. The printer maker is billing the change as a rationalisation. Epson dealers and wholesalers have been largely supportive of the move, though most recognise it as a sign of hard times in the Victorian market. Technical support has been centralised in the Sydney head office, where 14 staff members handle customer calls. 'It is better to have a pool of people who can share the resources,' said Epson technical support manager Steve Tongs.

Epson service is handled by some 60 service agents around Australia, with the most important being 3M. Epson's regional branches used to hold stock of components that could be requested by service agents for repairs. That stock is now being held in Sydney, with parts being shipped overnight to service agents. Epson service center manager Simon Gasper, said this would be no slower than the previous system. □

Amiga A3000

COMMODORE HAS launched the A3000 Amiga in Europe and the US. The new machine uses a Motorola 68030 microprocessor plus math coprocessor, combined with an upgraded version of the Amiga chipset. A proprietary expansion slot allows the machine to accept alternative microprocessor modules, such as the forthcoming Motorola 68040 chip or third party RISC (reduced instruction chipset) microprocessors. Improvements to the Amiga's software include Amiga Dos 2.0, which supports a screen resolution of 640 x 480 pixels, plus improved icons and file locking.

The Amiga A3000 is scheduled to start shipping in Europe and the US at the end of June and in Australia sometime in the second half of this year.

One of the markets at which Commodore is aiming the machine is the CAD workstation marketplace. Phister pointed out that Commodore is also targeting the machine at multimedia applications, as well as at other traditional Amiga strongholds in graphics, desktop publishing, and presentations.

Australian prices are yet to be announced, but, as a guide, the English prices start from UKP2499 ($5550) for the Model 16-40 (68030/68881 running at 16MHz, 1Mb of RAM and a 40Mb hard disk), and range to UKP3299 ($7330) for the Model 25-100 (68030/68882 running at 25MHz and with a 100Mb hard disk).

Along with the new hardware, Commodore introduced a multimedia authoring system called AmigaVision, which will be standard equipment with the Amiga 3000. AmigaVision will probably be bundled with other Amiga models too, except those not equipped with hard disks. AmigaVision needs 1Mb of memory, and a hard disk is strongly recommended. □

PC 'strine

IN A MOVE to help us locals feel more at ease with electronic voice systems, a voice synthesis chip has been developed in Sydney which will allow computers to talk with an Australian accent. As a rule, 'strine is more comforting than metallic sounding foreign accents. The research which has led to the development of the chip was carried out by Dr Clive Summerfield of Sydney University, who has formed Syrinx Speech Systems, a private company, to continue the research. OTC, Australia's international carrier, has announced the signing of a memorandum of understanding with Syrinx worth $254,000 to further develop the technology.

The chip works by taking a mathematical representation of the human vocal tract to speak in the desired accent. It is the world's first multi-channel chip for speech synthesis, and when fully implemented with the proper software, should be able to talk in any language, with any accent, and in the female or male gender. This, says Peter Wright, manager of Service Enhancement Research and Development for OTC, makes the chip 'a truly generic voice synthesis chip'. So far, a model of an English accent has been developed by British Telecom, and demonstrated already.

Linguistic experts at Macquarie University in Sydney are now developing the model of the Australian accent which will be recognised by the chip to allow a more natural sounding electronic voice. □

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THE SILVER PARTNERSHIP TOS 0690

Austel buys $500,000 system

THE AUSTRALIAN Telecommunications Authority (Austel) has announced the purchase of $500,000 worth of computer equipment, software and training for the automation of its administration. The equipment has been designed into a four zone network by the supplier, Logical Solutions, who will also design and write an integrated File Registry and Library System.

The network is made up of Apple Macintosh SE/30s and IIcx workstations with Apple Laserwriter IINTX laser printers and an AppleScanner for data input. 'Macintosh was chosen because it was the most cost-effective solution and required less training and support than other options. The hardware and software features we felt desirable were already existing in Apple products,' said Austel's services manager, Paul Westbury.

Austel was formed in July 1989 to ensure the quality and safety of the public telecommunications network provided by Telecom, Aussat and OTC. Duties of Austel include: defining the bounds of the monopoly held in the Australian network; promoting fair and efficient marketing within the network; protection of customers including registering complaints against the service providers; and general administration of the telecommunications industry. □

System/6000 recognised

The Research Consortium honored the RISC System/6000 series for technological significance of the product's hardware and software; price/performance; quality of the product at first delivery; broad applicability of the product, and general perception of overall significance by RCI advisors and members, industry analysts, and the press.

THE US-BASED Research Consortium Inc. (RCI) has presented its first annual High-Performance Computing Industry Recognition Award to IBM for delivering the 'most significant recently announced new product' for the high-performance computing community. The award, presented at the RCI's sixth annual North America Members Symposium in Washington, was given to IBM for its RISC System/6000 family of POWERstations and POWERservers, announced earlier this year (see the June issue for details).

In accepting the award presented by Dr. Judith Bostock, assistant to the science advisor, President's Office of Science and Technology Policy, IBM's Nick Donofrio, IBM vice president and president of the company's Advanced Workstations Division, said, 'We are highly honored that the industry has chosen to single out IBM for its technology leadership with our new line of advanced workstations.' □

Fax Discovery

'Using Discovery, personal computer users will continue the inexorable trend towards the single-unit, multi-dimensional personal communications platform' – General manager Maureen Murphy at the announcement of the new Discovery fax and messaging facilities.

TELECOM HAS announced the broadening of Discovery's communications options by introducing facsimile transmission and messaging facilities. The fax transmission feature is divided into two services, Telefax and Faxpost. Telefax basically allows the user to use Discovery as a fax card for their computer. Through the system, subscribers are able to store stock elements (letterheads and signatures, for example) and send them as parts of a fax anywhere in the international fax network. A store of commonly used numbers is maintained by the system, and users can also refer to the online national Fax Directory in Discovery. The Faxpost facility is used for when the recipient of the fax does not own a fax; the transmission is then sent to their post office to then be delivered.

The messaging system is through either Discovery 40 or 80. In Discovery 40 (videotex) mode, messages are sent to the recipient, and if they are offline, are stored in their mail box. This option is mainly for short messages, and where file transfer is not needed. For higher speed (2400 bits per second), which makes larger messages and file transfer economical, the Discovery 80 option is selected. □

Compaq Technology Forum

'Color screens will pop-up within the next year, but they will be expensive and low resolution,' said Rod Canion of Compaq at the Technology Forum during his keynote address. One of the main thrusts of his speech was that micro-based systems have an inherent flexibility that will inevitably mean an erosion in sales of minis and mainframes.

THE FIRST Compaq Technology Forum, held in Sydney, was co-sponsored by Lotus, Ashton-Tate, Novell, WordPerfect, Microsoft, SCO and Proteon, plus a number of other vendors – over twenty in all. The two-day conference and exhibition was aimed

at Fortune 500 companies and public-sector purchasers, plus key resellers – the 847 registrants were seen as proof that there are still some people buying high-end PC systems.

One of the most notable (if not immediately noticeable) features of the conference, was the complete lack of show-business effects. Apart from one direct satellite link to Boston to hear about the announcement of Lotus release 3.1, there were no dancing girls and no laser shows. The only props used were large video screens.

Speakers included Edward De Bono, Compaq president Rod Canion, Compaq International president Eckhard Pfeiffer, Microsoft senior general manager (OS/2) Peter Neupert, Ashton-Tate chief architect Moshe Zloof, SCO president Larry Michels, plus numerous VPs and managers from other computer companies. The participants told the press that they saw the gathering as an indication of maturity in the PC industry, when competing companies could come together to talk about connectivity and co-existence, not competition.

The twenty-vendor exhibition was totally made-up of one large network, carrying more than 30 types of applications. Compaq Australia technical director Ian Harvey told Newsbytes that the installation wasn't about size or setting records, but about connectivity and systems integration: 'We've got Novell Netware, Microsoft Lan Manager, and SCO Unix in both Token Ring and EtherNet topologies.'

While giving the keynote speech at the Forum, Compaq president Rod Canion revealed that his company will release color LCD screens for its battery powered machines within a year. Speaking on changes and developments, Canion said that contrary to some analysts predictions, he believed that the industry would develop even faster over the next five or ten years. He said there were four areas of opportunity for the industry. Desktop PCs (though diminishing), Laptop/Notebooks (quickly increasing), Unix and other workstations (increasing, though being overtaken by PC alternatives) and the new class of PC systems.

Canion also predicted a dramatic drop-off in '286 sales, with the trend moving sharply to '386 and '386SX machines. He said that 80 to 90 per cent of all PCs would be networked in five years. On operating systems he predicted a strong acceptance for OS/2, especially when the new '386 version is released. □

BSA Misdirected?

ATARI'S TAIWAN subsidiary and Pacific Electric Wire and Cable Company of Taipei, one of the country's top manufacturers, have been charged with copyright infringement by the Business Software Alliance (BSA), which represents leading personal computer software companies. The alliance, backed by Lotus, Ashton-Tate, and other top American software firms, charges that the firms have engaged in unauthorised copying of copyrighted software in their business operations, a practice BSA believes to be widespread in Taiwan.

The software that is the subject of legal action includes Ashton-Tate dBASE III Plus database management software and Lotus 1-2-3 spreadsheet software. Criminal proceedings have been started in Taiwan for suspected copyright infringement by the two large companies in Taipei. BSA said that an additional company was also the subject of a similar legal action in Taiwan and that further actions are planned. In a news conference linking Washington and Taipei by satellite, Douglas E. Phillips, president of BSA, spoke from Washington and Harry Yu, chairman of the ROC Software Industry Association, spoke from Taipei. They both emphasised the importance to Taiwan industry of ensuring that only authorised, original software is distributed and used in Taiwan.

In a published statement, Atari President Sam Tramiel stated: 'Atari has a long standing corporate policy against the copying of software and does not permit unauthorised duplicates of software to be used for corporate functions or any other purposes. PCs are allowed at the Taiwan plant for employees' personal use. The Atari Taiwan Manufacturing Corp. plant uses an IBM 360 mainframe computer and MAPICS software along with Atari ST computers and software for operations and engineering. While we support the ideals of BSA in its endeavor to stop piracy, we believe that they are misdirected and have blown this matter completely out of proportion and have failed to fully investigate the facts or meet with Atari. We are investigating the matter at this moment and will take such actions as are appropriate but we believe that if such duplicates were found in the plant, they were the result of individual employees who did so for their own personal use on their individual computers and clearly without authorisation.'

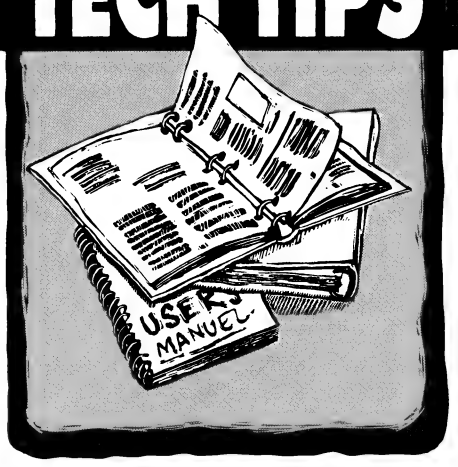
Jack Tramiel, Atari chairman of the board, responding to the BSA charges of piracy at the company's Taiwanese subsidiary: 'It is highly unfortunate that time and effort are wasted on such a matter when billions of dollars of revenue are being robbed from American companies each year by mass producers of pirate software, computers and consumer electronics right in the middle of Taiwan and the Taiwan government does little to stop that. Each year, Atari loses millions of dollars in revenue due to pirate video game producers in Taiwan who manufacture exact duplicates of Atari equipment and sell them the world over, yet that is not the issue they choose to investigate or take a stand against.'

Meanwhile, the Australian branch of the BSA, the BSAA, is using an international firm of private investigators to gather evidence of piracy in several major Australian organisations. Five organisations are currently being investigated by the BSAA and the Australian Federal Police.

BSAA has been involved in a six month educational campaign, and has reported a high number of individuals and organisations who have made inquiries with BSAA about complying with the law. The five organisations currently under investigation have consistently and blatantly breached the Copyright Act, according to the BSAA. If convicted, individuals face fines of up to $50,000 or six months jail, and organisations face fines up to $250,000 and wide publicity to deter other potential offenders. Despite all this, 'The BSAA's primary objective will always be education and offering help to individuals and organisations who wish to voluntarily comply with the law,' said Herford. □

'Industry Updates' is provided by Newsbytes, the world's largest independant network of computer journalists.

TECH TIPS



If you have any technical advice or hints on using hardware and software that might interest others, drop us a line and we'll pass them on. If you have a PC problem that's been bugging you, send it in, and we'll try to help. Write to: ***Tech Tips, Your Computer, PO Box 227, Waterloo 2017 NSW.***

Monochrome and games

I own an XT with a Thomson TTL monochrome monitor and wish to run a number of games programs. As yet, I have not purchased a graphics card, as I do not know which type of card is best for my application. Can you help?

David Fix
Mangerton, NSW

The card which is best for you depends on the type of monochrome monitor your Thomson is. There are three major types of monochrome monitors in the PC arena at the moment – the basic MDA- and Hercules-compatible TTL unit, dual-scan TTL monitors which are compatible with both the MDA mono and CGA color standards, and the much newer monochrome analog VGA monitors. The latter is suitable only for VGA cards, and in that application can display 64 levels of grey. This mono VGA system is the way that the industry is moving at the moment, as it means that the same VGA standard is used for both mono and color applications, and an upgrade from mono to color is performed by simply changing the monitor.

If your monitor is a dual-scan type, then an auto-switching card which supports both the CGA and Hercules standards will provide the solution. The monitor is able to detect which mode the card is currently operating in, and switch over as the card changes mode. Colors from the color card are displayed as shades of grey (or green or amber), and some foreground/background color combinations may be illegible. Since most early laptops emulated the CGA, a lot of software can be configured to provide a readable display on a monochrome screen.

If the monitor in question does not have dual-scan capability, then there are two options. One is to use a straight Hercules-compatible card, with some form of software emulation for programs which does not support the Hercules standard, such as some games. Problems will arise, however, with software which writes directly to the screen, or games which need to be booted rather than run from the Dos prompt.

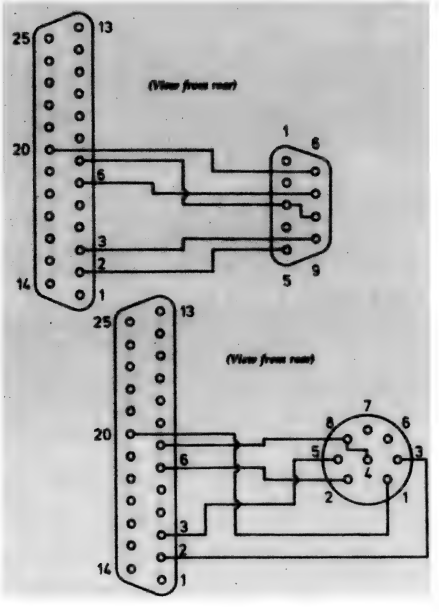
The other possibility is to use a card which connects to a standard MDA-compatible TTL monitor, but emulates both the Hercules and CGA cards. However, in either mode, the signal from the card's output port is compatible with the MDA monitor. Since the emulation is in hardware, it is compatible with auto-boot games and software which performs direct screen writes. Although we have all heard about such a card recently, we don't know who is distributing it. Can anyone out there help?

Mac modem cable

I have a Bit Blitzer 123E modem which I bought second-hand, and would like to connect it up to my Mac Plus. Is this possible, as I understand that the Mac uses the RS-422 standard for its serial ports, not RS-232?

Keith Cowley
Zillmere, Qld

The Mac's implementation of RS-422 is not strictly kosher, and it is reasonably simple to construct a cable to connect your modem to the Mac. The only limitation is that, because the Mac doesn't have many handshaking lines, some of the functions cannot be used, notably Clear To Send (CTS) and Request To Send (RTS). These lines are not required for most modems, but if you are using a modem which can have a different terminal and line speed, then problems might arise with data from the computer overrunning previously sent data. The Bit Blitzer 123E does not have different line and terminal speeds, so you shouldn't have any problem. The accompanying diagrams show how to connect a standard RS-232 device, such as a modem, to both types of Mac serial ports, either the older DB-9 or the newer 8-pin mini-din connector. (The diagrams are from Mark Cheeseman's discussion on the different types of PC connections which appeared in the January 1989 issue.)



These diagrams show 'straight-through' cables for the two types of Mac serial ports, to allow the standard RS-232C peripherals to be used with a Macintosh.

Editing TIFF files

Some time ago, I scanned some line-art and saved the images as TIFF files. I would like to import the images into PC PageMaker, but need to make some changes to the images before using in my Pagemaker documents.

H. Richardson
Glebe, NSW

The solution to this is reasonably roundabout, but will work provided you have the

full version of Windows (not the run-time version provided with PageMaker), and don't need very high resolution. First, load the TIFF file into PageMaker (just a blank page will do), and cut or copy it to the clipboard. Then, open Windows Paint, and paste the image into it. Any minor changes can then be made to the image, which can then be either pasted back into a PageMaker document using the clipboard, or saved from Paint as a .MSP file, which can then be placed on any PageMaker page in the future, without having to re-edit the original TIFF file each time it is used.

Reading 1.44Mb disks

A colleague of mine recently sent me some data on a 3.5-inch floppy disk which I cannot read on my machine. Since I have a high density drive, I would assume that it is capable of reading either 720K or 1.44Mb disks, but I can't read this one at all.

Bernie Stiles,
Berowra Waters, NSW

The problem may well be the differences between disks and disk drives. High density (HD) 3.5-inch disks differ from double density (2D) disks in two ways: the magnetic material is different; and the high density disk has a hole that indicates its type. In theory, the diskette drive can tell the difference between the two densities and will only let you format a high density disk to 1.44Mb while limiting a double density disk to 720K. In practice, many drives aren't fussy and will let you format cheap 2D disks as though they were HD. The problem comes when you try to read those disks on a drive which can tell that it's only 2D. Regardless of the fact that it can be read, the drive says 'You *must* be 720K but you aren't, therefore you're a bad disk!'

One way to read the disk is to give it that hole it hasn't got. To find where it should be, look at the back of the disk, with the write-protect tab on the bottom left. The hole should be in the same position on the bottom right. Turn the disk over and you may find a moulding indentation where it's supposed to be. To make the hole, you can either cut it with a Stanley knife, burn it out with a soldering iron or drill it out with around a 3mm drill. Whichever you do, be careful of loose pieces or 'dags' hanging off the hold as these might damage something. You might have jumped to the obvious conclusion that this is a good way to make cheap disks do the work of expensive ones. While this will often work, the danger is that the biscuit (the magnetic 'disk') is made to a different magnetic formulation, and high density drives have different read and write electrical characteristics to double density drives. The end result is that a 'treated' disk might read correctly today, but in six months, when you really need the data, it's become flaky, and you can't get everything back.

Stretching cables

G'day fellas. When young Jakey told me how he was getting some of the best PC brains to share their technical know-how with you budding troglodytes, I naturally told him I'd do my civic duty. This month I'll reveal some of the secrets of making things.

Now take cables ... how many times have you set-up the old President, only to find that the printer's six inches too far away from the PC ... or maybe it's the PC that's too far away ... Anyway, this is what you do. Just plain stretching the cable won't work. They break! The way to do it is to grow the cable. Set everything up so that the cable is nice and taught, and attach a weight somewhere near the middle. It's important to keep the PC and printer turned on while you're doing this as the cable needs sustenance to grow. All you have to do then is move the devices further apart each day, until the cable has grown long enough. Easy? Note that this process takes longer in cold rooms and works better if you feed the cable with a spray of Mr Sheen every day.

Vernon V. Shrunkle
JP. GIO B.ed (Retired)

Long icon names on the Mac

I have a problem with the names of files overlapping in the Finder. While I could use shorter file names, I like the convenience of using more descriptive (and longer names). Although this is not a major problem, it would be nice to have the filenames not overlap if at all possible.

A. Garrett
Kholo, Qld

As most Mac users would know, when viewing files in icon mode in the Finder, the names of adjacent icons can often obscure each other well before reaching the Mac limit of 32-character file names. The way around this is quite easy, as long as you have ResEdit, Apple's Resource Editor – copies are available through user groups or most public domain libraries. Make sure you have a copy of all files you modify with ResEdit, because it can be harmful if you change something you shouldn't.

Once you have ResEdit, open it from the Finder. You will have to make sure you don't run ResEdit from the MultiFinder, as ResEdit won't allow you to operate on open files, and the Finder is usually open under MultiFinder. You will be presented with a list in a window similar to the 'View by Name' listing in the Finder. Just double click open the folders to take you to the Finder, then double click on the Finder itself. When you do this, you are then presented with a list of Resources within the Finder. The one we want is a 'LAYO' Resource, so double click on that listing. Generally there should be only one LAYO resource of id#128, so once again, double click on that listing. The next listing should look a fair bit different, starting with a box for 'Font ID'. For now, we'll ignore most of the information in this resource, and concentrate on our file name dilemma.

Scroll down the listing till you come to 'Icon Horz' spacing. The value for this should be 64 (pixels, or dots on the screen). This figure sets how far apart the icons appear horizontally in the Finder. We could just assign a large number to this variable, but that would be wasteful, as icons would then only be able to go two or three across a normal window. The trick is to change the variable two down from making this value 16, we ensure that names will never run into each other, and they will almost always stay clear of the icons themselves. To save a bit of space vertically, you can change the 'Icon Vert spacing' variable to 50. Try the change and quit out of ResEdit. When you get back to the Finder, adjacent columns of icons should be offset by the value we assigned. You can obviously change these values to get the Icon views to your liking.

If you also have a bit of a play around with the other variable in LAYO 128, you can have the Finder change the way it looks/acts. For example, there are several

Radio Buttons further down the list, one of which is 'Always grid drags'. By checking the '1' option, whenever you move an icon (normal or small) it will always go into a neat grid position, that is the positions the 'Clean up' option uses. This means you will almost never have to do a 'Clean up Window' again! This can also be achieved by holding down the Command Key while dragging.

A quick note: Always try to understand the changes you make. Some of the options in LAYO 128 are a bit obscure, and you could do something you don't want to. One of the options to be particularly wary of is 'Skip trash warnings'. If you check this option, the Finder will *never* ask you if you are sure you want to delete something (it asks this question for system files and applications). Obviously, if you use this option, you will have to be fairly careful when you are deleting. Either have an undeleting utility (just in case), or if you are going to delete applications or system files, press the option key while dragging into the trash. This skips the trash warning for that delete only.

Where's the printer?

I have a problem with the parallel printer on my PC clone. Sometimes when I turn the printer on, the computer seems to think it's not there. I don't think it is a problem with the cable, as I can solve the problem by rebooting the computer. Once I have done this, the printer works fine for the rest of the computing session. Can you offer any suggestions?

J. Everett
Surrey Hills, Vic.

The difficulty you have is not uncommon, and relates to the way in which the BIOS searches for the presence of parallel ports in the machine during boot up. There are three locations in the I/O map that parallel ports can be located, 3BCH, 3E8H, and 2E8H. The BIOS routine checks these locations, starting at the highest one, and working its way down. Each time it finds a parallel port, it stores the location of the port in a specified area in RAM, called the BIOS data area. Dos then uses this information to assign the logical Dos names LPT1, LPT2 and LPT3, to the first, second and third ports that are found.

The way that each port is checked is to write some test data to the data port, and then perform a read operation on the same port. The ports are configured so that reading the data port allows the software to see if the data which was written to the port is what is actually being presented to the printer. If one or more of the data lines are shorted out, then the self test will not see a valid parallel port at that location, because the data written to, and read from the port do not match.

If an unpowered printer is connected to the port, the protection diodes built into the printer's input circuitry can virtually short these lines to ground. This means that the port to which the printer is connected fails the self-test, and Dos does not recognise it. If there is another parallel port in the system, then it will become LPT1, otherwise there will be no parallel ports. This can be verified by running Norton's SysInfo program (one of the Norton Utilities), and looking at the number of parallel ports that it finds – the number will be one less than there should be.

If you don't have the Norton Utilities, debug can be used to look at the BIOS data area, to check the locations of the parallel ports. Enter debug, and type 'd 0040:0000', to display the start of the BIOS data area. The six bytes starting with 0040:0008 represent the I/O locations of the three parallel ports which can exist in a system, although the actual locations are not important here. A '00 00' value means that that port does not exist. If all values are zero, then there are no parallel ports in the system. Make a note of these values, and then re-boot the computer with the printer turned on, and repeat the exercise. A change in any of these values means that you've found the problem.

The solution is pretty simple – always power the printer up before the computer, or plug the two into a power board, and turn them on together.

Caps to lower case

Sometime ago I was shown how to change upper case letters to lower case in WordStar 4. I've now forgotten and have searched the Menus repeatedly for help and it's driving me mad. How is it done?

Vera Tate
Adelaide, SA

Easy: mark the block of text you want to change (Ctrl-KB and Ctrl-KK) and then Ctrl-K'' (double quotes) will change lower case to upper; Ctrl-K' (single quote) will change upper to lower. We discovered this by accident some time ago, but it is in the manual under Case Conversion.

Trouble with Windows

I have just obtained a copy of Windows 3.0, and while I think the new user interface is very nice, I am having trouble with some of my existing applications. For example, PageMaker refuses to open a document because of a lack of memory. I am using a '386-based machine with 4Mb of memory.

Geoff Taylor
Tullich, Vic.

Unfortunately, there is no real solution to this which allows existing applications to access the improved memory management features of Windows 3. The immediate solution is to run Windows in real mode (by typing win /r at the Dos prompt). Unfortunately, this disables the memory management features of the '286 standard mode, and '386 enhanced modes, but should allow existing applications to run. The best long-term solution is to obtain Windows 3-compatible versions of your application software. Microsoft assures us that they have been in contact with application developers, so that updated versions of their software was to be available soon after the launch of the new Windows. □

Hint

Did you know that you can generate any extended ASCII code from the keyboard, by holding down the Alt key, and typing in the ASCII code (in decimal) on the numeric keypad? The state of the NumLock key is unimportant. This works with virtually all software (even Windows applications), although the way in which a particular program responds to unusual keystrokes is up to the programmer. This facility is useful for drawing lines and boxes in wordprocessing files, for example, and while some software packages mention it in their manuals, a lot don't. The best thing to do is to try it with your applications, to see if it can be used for anything useful.

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	Land mark	SI
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	Land mark	SI
Benchmark test	21.8	18

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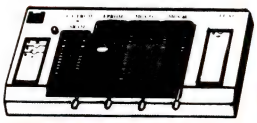

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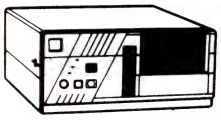

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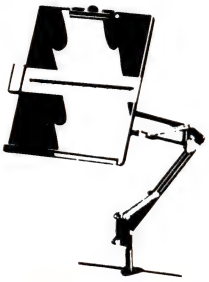

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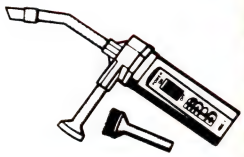

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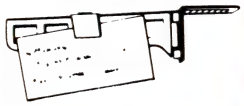

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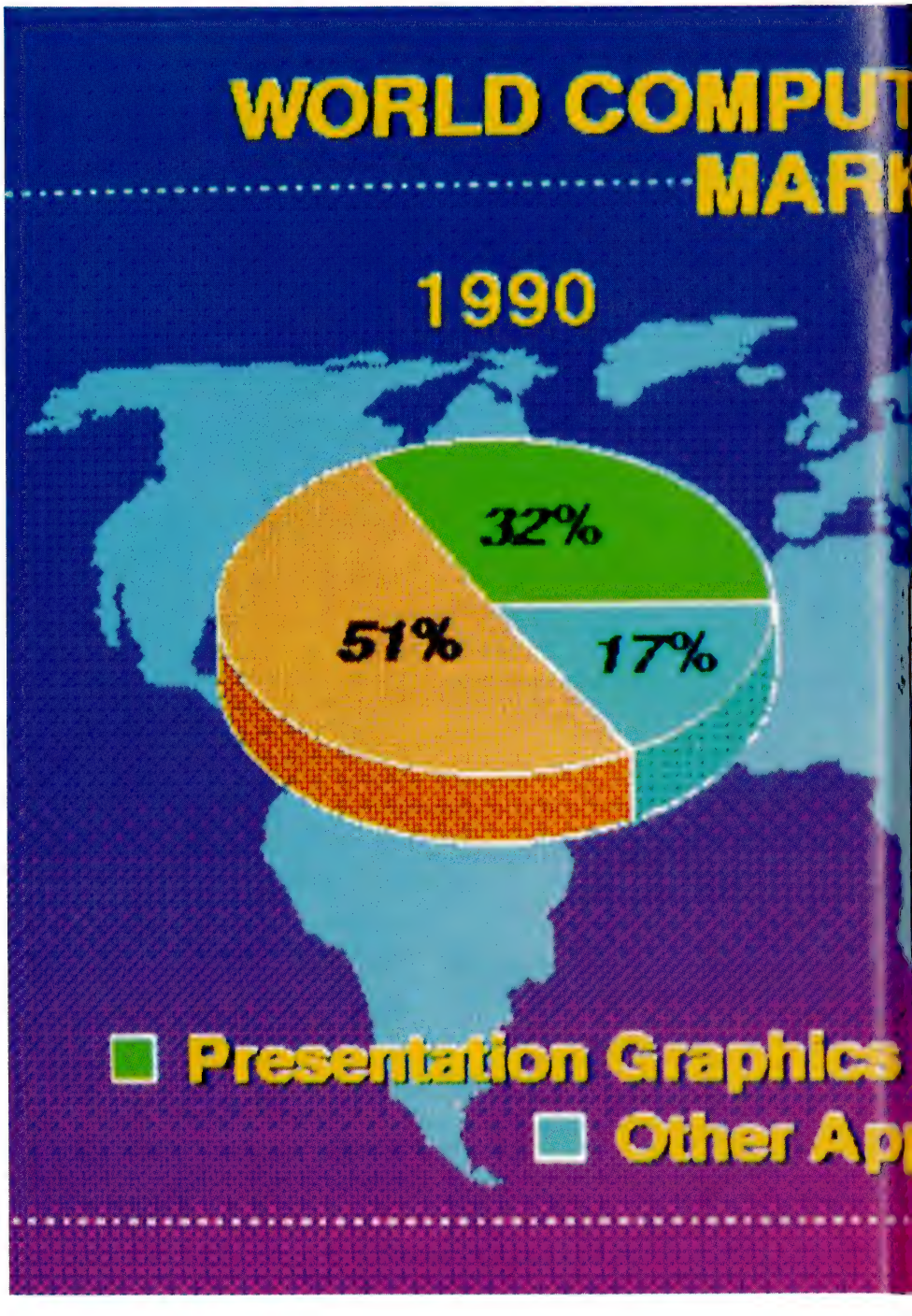
GRAPHICS FOR

Now that the IBM-world has embraced the graphical user interface, powerful presentations have become a mature part of information technology. Jake Kennedy reports on the tools available for taking your message to an audience . . .



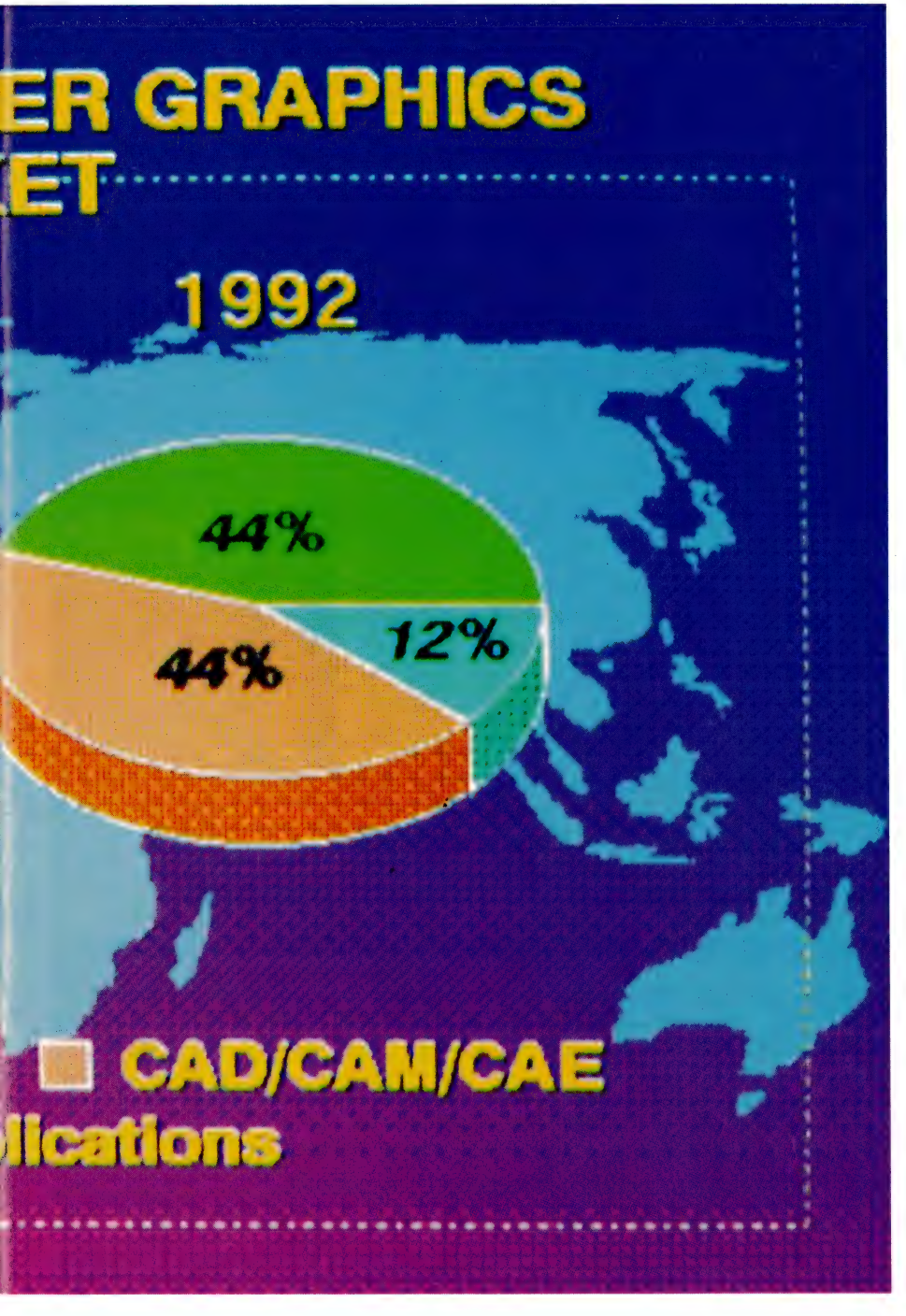
GRAPHICS FOR presentations to a live audience is finally coming of age in the PC world. Not much more than a year ago, we could be pleased with ourselves for creating simple business charts, but users now expect much more – and developments in hardware and software are giving it to them. Professional presenters have always known that colorful graphics can be used to support a presentation by focusing listeners' attention on the 'facts', either by making the information easier to interpret or by associating numbers with visual images. (The soaring 747 trailing a rising airline profit line and similar images are familiar to all of us – although I can't recall seeing a jumbo used like that when airline profits dive.)

As IBM users have become accustomed to graphical interfaces offered by the likes of Windows, NewWave and many other new applications, they have demanded more from their own computer-generated presentations. In the past, the priority with software was simply to allow users to create images, but now, that's hardly enough to be a starter in the market race.

To be effective – and stand up to the competition's presentation – graphics need to follow good design rules, use psychologically appropriate colors and have a cohesive look about them. Every presentation graphics package worthy of the name allows that easily enough (although you can't expect them to make an artist from a sow's ear). As a matter of course, we can expect to combine images from several packages, add clip-art, rotate and annotate charts and use graduated colors.

On the presentation side, the software must be able to consolidate images (for a slide show, for example) and handle basic file management. 'Output' is what's needed here – whether it's to a 35mm slide, desktop publishing, overhead projector transparencies or LCD panel, a color printer or computer video, the presentation needs to be in a presentable form.

PRESENTATIONS



Input

A PRESENTATION will have one of four purposes: to inform, instruct, to persuade/motivate or to entertain. Once the purpose is decided, it's time to start the creative process by choosing the most effective way of addressing the audience – desktop publishing an 8-page handout requires an entirely different approach and different choice of material than an 8-slide show. (For a discussion on graphic design and creative ideas, see Brett Sullivan's 'Computer Video Design' in this issue.)

Text-based presentations are straightforward – and boring (spare us another bullet chart). Add a graph or two and they become more interesting – and effective. Add images and color – and your presentation comes to life.

There are four ways to generate images for a presentation: draw them with a paint package, use a graphics library, modify templates built into a package or scan an image. Unless you have confidence in your abilities as a graphic artist, the first option mentioned should be the last used. Most presentation packages come with a library of simple graphic symbols or clip-art and incorporating these is usually easy enough. If the clip-art can be broken into component images, all the better for flexibility. The templates used in object-oriented presentation packages are often all that is needed – they are easy to manipulate and cover most requirements with easily modified versions of the basic graph types.

A presentation package must be able to export and import a range of text and graphic file formats. Ideally it would support WK*, ASCII, DIF, DBF and XLS files for text, and TIF, CGM, PCX, DRW, EPS, IMG, PIC, PCX, IMA and XLC for graphics. In reality, it is necessary to ensure that the software being used is supported by the presentation package you want to use – if there is any question at all about this ability, try it at the dealers before you buy.

The most powerful images in a presentation are those most relevant to the topic. That usually means starting with a color slide or a printed image and then scanning it into a format used by the software. For example, marketing presentation commonly demonstrates increasing sales by scaling an image of the product appropriately.

Don't expect to be able to incorporate recognisable or flattering images of human faces into the presentation with a scanner and software, however. Even though the resolution of most monitors is better than that of TV, the images won't look natural because of the color limitations. TV gives us a recognisable face since it has a virtually unlimited number of colors to work with, while we are limited to 256 on-screen at once.

Because of the limited color, most natu-

When it came time to load the presentation packages on to a computer for review, it was immediately apparent that my workhorse 10MHz AT with 1Mb of memory, EGA screen and 20Mb hard disk was inadequate. Remembering that Wyse had recently released their new series of PCs, I gave them a call and they arranged for the loan of one from their dealer, The Great Escape. The model 3225 supplied was a 25MHz 80386 with a 150Mb disk, 12-inch VGA monitor and 4Mb of RAM. The 64K of cache memory, the use of shadow ROM by the system and the fast ESDI drive, meant the packages ran without much hold-up by the computer. For producing high-quality graphics without the soul-destroying waiting for the screen to re-draw or a file to be loaded, a system such as this is almost minimum. Recommended retail is $13,220 with the 12-inch VGA monitor pictured here; a system with a 14-inch VGA monitor featuring pan, tilt and zoom is priced at $13,758; if you are working on large drawings or destop publishing, there is also a system with the 19-inch color monitor shown on the cover priced at $18,933. For more information contact The Great Escape, (02) 693 2022; fax (02) 693 2918.

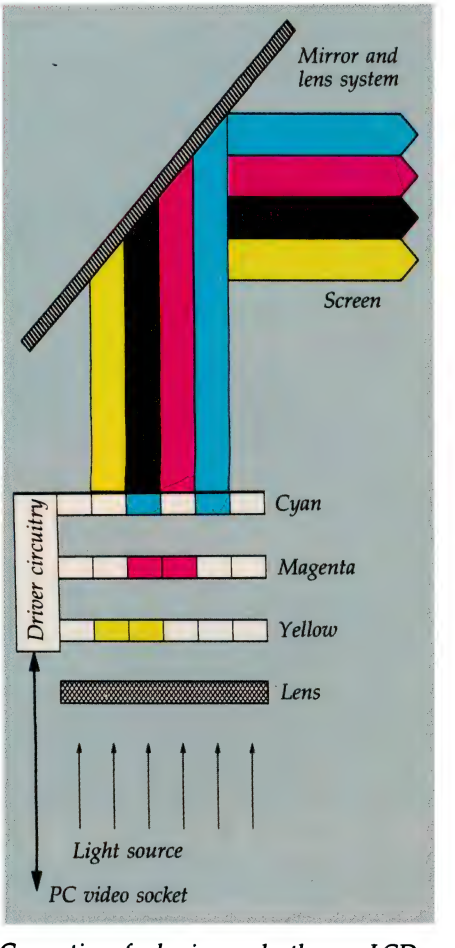
ral – as opposed to computer produced – images don't reproduce well; another reason that scanned natural images don't come up well is because curves and diagonals appear to be jagged (stepped). This also happens on television, but the edge color of the image is dithered (merged with the background color) so it's not noticeable from a normal viewing distance – close up, it can cause strain as the eye attempts to focus on the dithered edge. Some paint/drawing packages and most non-impact printers allow dithering for edge smoothing (it might be referred to as anti-aliasing).

On a color system, the value stored in the bit is a pointer to a color look-up table.

Scanners

IF SIMPLE LINE drawings are all that are required for presentation images, there's no need to spend thousands of dollars on a high-quality scanner. Hand-held scanners are priced under about $1000; these can scan 'columns' up to about 100mm wide and multiple passes can usually be formed into a single image.

Most of these offer resolutions up to 400dpi (dots per inch) and 64 levels of grey, which means the quality isn't much less than that of a full-sized page scanner (with high contrast originals, anyway). The main disadvantage to using a hand-held is that it is a slow and operator-intensive task, particularly as the scanner must be drawn across the image in a straight line.



Generation of color images by the new LCD panels is achieved by using three separate panels laid on top of each other – the system is simply an overhead projector with the transparency replaced by these active-matrix panels. Each pixel of each panel can be either off (it remains clear and white light passes through) or on (cyan, magenta or yellow). The lens beneath the panels is designed to spread the light (and heat) evenly across the panel. The system plugs directly into the monitor socket on a PC.

If you inquire about scanners, the color capabilities will be referred to as 6- or 8-bit – that specifies the number of colors that can be scanned. The same nomenclature is used for color images on a monitor and indicates the number of on-screen colors available. One-bit per pixel gives either a black or white value, 2-bits gives black, white and 2 shades of grey, and so on, with 8-bits giving 256 shades. On a color system, the value stored in the bit is a pointer to a color look-up table. This table can change for each image displayed, so it's possible to have an 8-bit display and a 24-bit look-up table, that's 256 colors possible from a palette of 16,777,216.

Recently, the first hand-held color scanners have been released. Typical of these is the GeniScan GS-C105, with 64 shade levels and resolution selectable in 10dpi steps from 10 to 400dpi. Images can be saved in TIF, PCX, PIC, MAP and TXT formats and edited with the included software, which also doubles as a standalone paint package. Priced at $295, the GS-C105 is good value from Pactronics, (02) 748 4700.

Why, you might ask, would anyone want to use less than the highest-resolution with a scanner? There are three reasons: First, some (particularly color) scanned images with low-contrast between foreground and background, look closer to the original on lower settings; second, at 75dpi for an A4 original, a scanner typically takes 15 seconds to read an image, while at 300dpi, it takes 47 seconds; third, is disk space – a black-and-white line drawing scanned at 75dpi uses 64K, at 300 dpi, 1Mb, and an 8-bit color scan at 300dpi uses 8Mb.

A recent release is Sharp's JX-100; while it is a 'hand-held', it actually functions as a flat-bed scanner in that the operator doesn't drag the scanner across the document, rather the optical sensor moves across it; the original can be up to 100 x 160mm. Maximum resolution is 200dpi and while scan speed is rated at a respectable 30ms/line, this is misleading because three scans are required for color images (for comparison, the JX-100's big brother, the JX-450, is rated at the same speed, but only needs one sweep to scan color). However, at a price of $2390 ($1995 for the Amiga and Mac versions) coupled with its combination of ease of use, color and portability (it ways only 1.6kg), this type of machine is going to give us a lot of new color computer images.

As a rule of thumb, the more individual attention that can be given to members of the audience, the less fancy the presentation should be.

If you have an Oki fax machine, it can also be used as a scanner by plugging an add-on, FaxScan (from Advanced Solutions, (02) 872 1981, $299), into the serial port of the fax machine and running a (supplied) cable to the parallel port of a PC (essentially, a fax machine is a combination scanner/modem). The results are better than most black-and-white hand-helds and there are other advantages – most of the Oki range can scan up to A3 size and there are paper guides to keep the paper straight as it is scanned.

Between hand-held and full A4 page scanners are a number of half-page machines priced around $1000. In many instances these can be the most cost-effective method for scanning images: the quality can often match full-sized machines and scanning is both easier and quicker.

Full-size desktop scanners have been available for some time, but their use was severely limited by the lack of color capabilities – images scanned in mono and then colored with a paint package usually look too 'cartoonish'. While desktop publishing was the main application for B&W scanners, high-end graphic design for advertising and promotional production and presentations will be the largest applications for color scanners; with the impetus now offered by easily digitised color images, color DTP should take off in the PC world, too.

Sharp has recently released two new

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Grey scales and color

WHILE LINE drawings and text can be digitised using only two intensity levels (black and white), photographs need to be converted into a number of intermediate grey levels in order to faithfully reproduce the stored image at a later date. There are two ways in which grey scales can be achieved in scanners. One is to use dithering, where patterns of dots are used to represent various shades of grey. An area with a dense array of dots appears darker than a sparsely populated area of the same size. However, dithering trades off resolution for grey scale capability, and to retain a useful resolution, the number of greys which can be achieved is quite limited. This technique of achieving grey scales is commonly used in hand-held scanners, and is also the method used by fax machines. And, it is how many pieces of software display shades of grey on a black and white monitor.

True grey scaling, however, does not result in a reduction of resolution in the scanned image. In scanners with this capability, each element in the CCD can resolve more shades than just black and white. The actual number of greys achieved depends upon the resolution of the analog-to-digital converter which converts the signal representing reflected light intensity into a digital value, with typical resolutions ranging from 4 bits (16 grey levels), as offered by the Apple scanner, to 8 bits (256 levels).

Images scanned with a 16-level grey scale have an obvious 'digital' look to them, and tend to lack fine detail, especially if the original picture is lacking in contrast. A 6-bit scanner is a definite improvement, while an 8-bit grey scale offers about as many grey levels as the human eye is capable of discerning. Because these grey scale values are stored as numbers in the computer, the brightness and contrast of the image can be adjusted (within reason) by simply scaling them using a simple linear mathematical function. Other functions, such as exponential curves, allow even more flexibility in adjusting the image for best appearance.

Most printing devices which can be used as output devices for a computer are only capable of printing two intensity levels. This includes plain-paper devices, such as laser printers, and also photographic devices such as typesetters. At first this may appear to make the scanning of grey scale images rather pointless, since they cannot be easily printed out. However, strictly speaking, the litho printing presses used to print this magazine can't do it either.

So, to achieve grey scale reproduction, the same principle used in commercial printing is applied to the printed output. This basically consists of breaking the image up into a fine grid of dots, a process known as screening, since the first way in which this was achieved was to photograph the image through a special screen. This broke the image up into dots – larger ones for dark areas, and smaller ones for lighter regions of the original. However, in this case the larger dots are built up from a number of adjacent smaller ones, since computer output devices can only produce one size of dot.

Therefore, in order to achieve a useful number of grey levels, the resolution of the output device must be significantly greater than the resolution at which the image is originally scanned. The resolution of the image is measured in lines per inch, or lpi, which is the number of screen rulings per inch. So, it is obvious that you cannot scan in a photograph at 300dpi and expect a faithful grey scale reproduction on a 300dpi laser printer. Even a Linotronic 300 typesetter, running at 2450dpi, cannot reproduce the desirable 256 grey levels at a screen resolution of 200lpi. At the other end of the scale, a typical 300dpi laser printer printing an image screened at 75lpi, can only achieve 17 grey levels. This grey scale/resolution trade-off is similar to the one discussed earlier for the case of dithering scanners.

Color Scanning

THE NEXT step beyond grey scale scanning is of course full-color scanning. Instead of simply analysing the amount of light reflected from each pixel of the object, a color scanner analyses the amount of each primary color reflected from the original. In Sharp's range of color scanners, this is achieved by shining three lights onto the original, one at a time – one blue, one green and one red. The CCD will produce three different values for each point on the currently scanned line, representing the amount of each of the primary colors present at that point on the image.

The single CCD sensor is moved over the image in the same way as in a monochrome scanner, and the sensor reads one line of information from the image while each of the light sources is illuminating it. Once all three colors have been collected for one line, the scan head moves to the next position to be scanned, and the process is repeated for each successive line. This is necessary because the CCD sensors are not sensitive to color information on their own.

With 6 bits of resolution for each primary color (effectively, a 6-bit grey scale for each color), 262,144 (256K) different colors can be resolved, which is the same number as the IBM VGA can display (although the VGA cannot display this many colors simultaneously).

color scanners for the business and professional designer markets that give a taste of what we should see from other suppliers shortly. Both are 300dpi machines offering 8-bit color and 1-pass scans. The JX-300 (for business) scans at a fast 45ms/line and can take documents up to 210 *x* 297mm; it's priced at $6450. The JX-450 (the 'professional') scans documents up to 297 *x* 420mm at 30ms/line. It's priced at $12,999 and there is an optional unit for scanning 35mm and overhead transparencies. For more information, contact Sharp on (02) 831 9111.

Presentation packages

PRESENTATION GRAPHICS packages naturally divide into two types: text-based and object-based. For comparison, we'll look at Lotus Freelance Plus as an example of the former, and Zenographics Pixie as an example of the latter; Enertronics EnerCharts 3D, our third package is unusual in that it is a mostly text-based package that runs under MS Windows. The different approach each group takes to creating presentation graphics, gives them quite different applications. (I also reviewed Harvard Graphics 2.12 – although it was the package that introduced more users to PC graphics than any other, it was very dated and had been left far behind by the competition – but shortly before press time, Software Publishing announced the long-awaited upgrade to version 2.3.)

In addition to the import/export capabilities mentioned above, packages meant to create presentations must be able to perform well in a number of areas –

□ ***Create*** all standard chart types (line, bar, stacked bar, scatter, high-low, pie, and text/bullet charts; the ability to rotate and create 3D charts is a definite plus).

□ ***Draw*** graphics primitives (lines, polygons, boxes, ellipses and so on) as well as offer free-hand drawing).

□ ***Edit*** text and images, including a supplied clip-art library; if the library images can be broken into component parts, all the better. Note that text editing abilities vary considerably between packages.

□ ***Annotate*** the graphic in a range of text sizes, styles and colors; legends and other text should be able to appear any place on the graphic.

□ ***Present*** an on-screen slide show; the basic requirement is for selected slides to be shown in a programmed order, each remaining in view for a pre-determined time or until the operator asks for another slide. Ideally, any slide in the show can be called up at any time, but many packages only accept next, previous, last and first selections.

□ ***Support*** other software and the available in- and out-put devices; support for VGA has become essential. This is the area that causes users more frustration than any other – software and hardware need careful matching; before making any commitments, try the package with the intended system. Don't accept as fact, for example, from the literature that the TIF files the software generates can be read by PageMaker or other applications: often either they can't be or they appear scrambled when read in.

For desktop publishing presentations in-house, a fast laser printer will save hours – these new releases from Kyocera are rated at 18ppm and have 1Mb of RAM as standard. The F1800 (left, $7850) has a single 250-sheet input bin, while the F3300 ($9750) can be expanded to 1000-sheet input.

Don't fall into the novice's trap of assuming 'fancy is good' – the level of design should be chosen to match the audience.

Freelance Plus

AS A TEXT-BASED package, Freelance uses on-screen forms to define the graphic. Users are guided through the process with a series of questions and menus which can be confusing until the terminology is mastered. (Do I want to change the axis, heading, label or description?) Proponents of this type of package claim that, unless you are a graphic artist, graphs can be more easily described with text (and numbers) and more quickly created than if the graph was being manipulated directly.

Perhaps – but we found creating a graph with any text-based package took about the same time as with object-oriented one. But the results from the two were hardly comparable: Pixie, for example, gives stunning results with a few minutes work, while Harvard and Freelance gave 'utilitarian' results for the same effort.

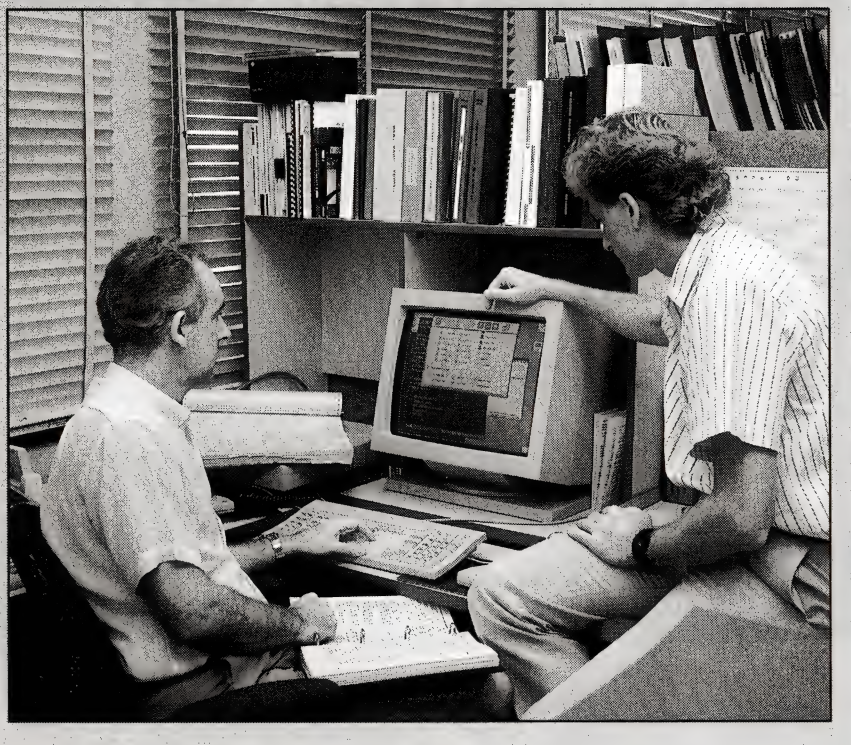
Don't fall into the novice's trap of assuming 'fancy is good' – the level of design should be chosen to match the audience. A group of 30 sitting in front of a large screen in a darkened room needs a higher-impact presentation than a small group that will cover the material on their own, or in a one-to-one – lots of color in a variety of shades, 3D graphics and heavy annotation slow understanding down for all audiences, but particularly so if the audience is on its own. As rule of thumb, the more individual attention that can be given to members of the audience, the less fancy the presentation should be. That doesn't mean don't use color or images on simple charts, just don't overdo it.

Freelance Plus is the first text-based presentation package to outsell Harvard Graphics. While it has its limitations, there are features that can make it a 'must have'. First of these is the full-featured Screen Show module (which includes fourteen transition types for each slide, from replace to quad). It facilitates creation of a run-time version of the presentation – a utility is used to run the show from the Dos prompt. For those doing large or many presentations, the Portfolio module makes file management easy and can also be used for printing a group of files.

Freelance uses a combination of forms and menus (invoked rather oddly with the space bar) to define the chart. Here the choices are generally great enough to give a fair degree of flexibility, but text options are few: there are really only 2 on-screen fonts available and only 5 sizes are available by default (from 'tiny' to 'extra large', although text height can be set in *millimeters* – why not points?).

The three real limitations of the package are that it doesn't support templates as such (although once a chart is created, it can be used a template), which means

FrameMaker



Senior supervising draftsman Greg Parker (sitting) and draftsman Stein Grodum updating one of the Department's technical manuals.

THE ROAD Planning and Design Branch of the Queensland Transport Department had a problem: how to keep 105 workstation users supplied with up-to-date engineering manuals – these complex technical documents and illustrations run to hundreds of pages each.

The Department was already using Sun workstations running Unix for design work, so when the decision was made to start desktop publishing the manuals, local supplier Delta Technology came to the rescue with FrameMaker, an authoring and publishing package with powerful graphic integration features. This allowed the manuals to be significantly enhanced with the inclusion of many more technical drawings and illustrations.

Prior to FrameMaker, the Department was producing the manuals manually – typing the text to be sent to an outside typesetter, pasting up, bromiding and all those other troublesome tasks that take the fun out of publishing – with a full-time staff of six. Now, four staff members handle all changes and updates and three of them are only part-time at the task. Another significant cost-saving is in printing and distribution – the manuals are accessed on-line from any one of the workstations; this also solves the problem of not being sure if the manual is current on a particular topic.

For those with a Unix system, FrameMaker is priced at $4750 plus an annual license fee of $725 for 3 users; the text and graphics filter packs are each priced at $1650. For more information contact Delta Technology, (07) 832 5377, or Platform Technology, the Australian distributor, (02) 956 7503.

it's necessary to repeat the basics for every type of chart; it doesn't fully support VGA graphics (only 10 color choices are offered) and the WYSIWYG isn't, particularly for text. The fact that it doesn't run under Windows may or may not be a limitation – the simple Screen Show run-time facility wouldn't be possible with a Windows-based package.

If Freelance is to be used to create periodical reports, there is another limitation that makes for extra work: 'live' links to an external spreadsheet are limited to 8 columns, so if your report draws in 9 columns, say, it is necessary to import the data each time (140 columns worth of data can be imported).

On the plus side, Freelance has one of the largest standard-clip art collections we've seen – there are some 900 images and symbols, from organisational charts and country maps to human meetings. Unfortunately the images can't be broken up and re-combined or otherwise manipulated beyond Turn-ing, Flip-ping and Replicate-ing. And – although each outline image has a set of colors defined for it, changing these most often results in loss of detail in the drawing or mis-aligned colors. A handy feature of the package is that the work area consists of two pages – the second can be used to 'play' with the clip-art without the distraction of the chart on-screen or to otherwise experiment without opening another file.

The level of design should be chosen to match the audience.

The drawing features of Freelance are fairly comprehensive for a package of this type. In addition to the standard boxes, ellipses and polygon features, it can smooth objects (over and over) – while it's no match for a dedicated paint or drawing package, Freelance's drawing ability will often obviate the need for one.

While Freelance has no built-in facility for generating speaker notes for presentations, this can be done with a bit of time and effort by copying each 'slide' to a second file, than shrinking the chart in the new file to accommodate the notes. This is a typical solution to the limitations of the package – with a bit of thought and extra effort, most of them can be overcome.

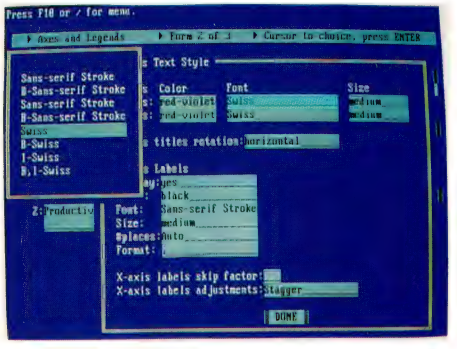
Freelance is a good all-rounder for business users who have occasional need for presentation graphics or frequent need for simple graphics for reports, particularly if other Lotus products are being used.

Pixie and EnerCharts

BOTH PIXIE AND EnerCharts run under MS Windows. The two offer full-VGA support as well as the ability handle an ac-

ceptable range of file formats. They also have in common the ability to easily create a colorful, 3D presentation graphic and edit it without fuss (unfortunately, this also gives the un-talented the ability to create garish screensful of confusion).

Note that several of the images accompanying this article and the one on the front cover where photographed directly from a standard VGA screen – output to a slide-maker or the likes if an ink-jet printer is needed to give a professional finish. Also, both packages discussed below need

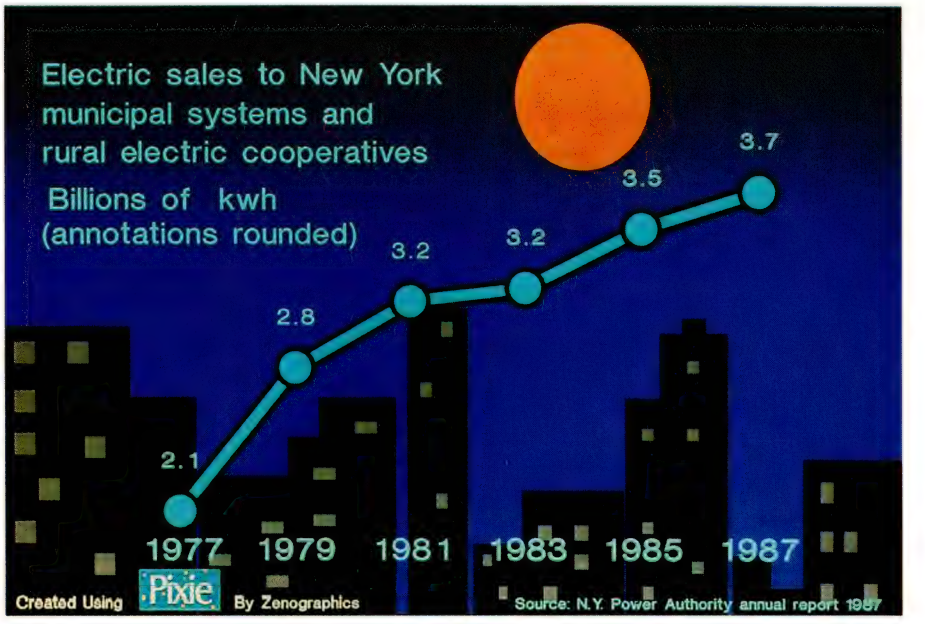


Freelance Plus used a combination of forms and menus to define the chart with a great deal of flexibility, but text options are few with only two on-screen fonts.

a '386 to avoid long waits while the screen is re-drawn after alterations – on a 10MHz AT re-drawing the screen of an almost-finished graphic could take minutes.

The first difference I noticed between Freelance and these two was in the manuals: Freelance comes with a collection of documents the size of the Oxford Concise Dictionary, while Pixie and EnerCharts both have a manual less than a fifth of that size. This was a very good indicator of how easy the latter were to master: the basic functions will already be familiar to Windows users and most of the rest are intuitive to any one who has used a drawing package.

Pixie uses a very flexible set of templates as the basis of charts. For example, the bar chart template has only four bars on it; to add another, simply select one and Dupe it with the Tools. Clicking on a bar gives a handle that can be used to adjust the value (which is shown above each bar) and a dialog box into which a new value can be entered. The ability to see the result as soon as a change is made is a big plus and relieves a lot of the frustration of going back and forth between a form and the chart – regardless of what



The most powerful and memorable images are those most relevant to the topic. As can be seen here, they needn't be complex – simplicity is most often the key to good design. This slide was created with Pixie.

Polaroid's new CI2000 film recorder can output 2000 line per inch (lpi) slides and overhead projector transparencies. While the system is priced at $2900 it can only output 16 colors from a palette of 4096.

the form-proponents say.

While the graphic library is quite limited, the package is designed to use what there is to excellent effect. Once imported and sized, though, the clip-art image can't be manipulated. The images are more suitable for backgrounds than accompanying illustrations. Backgrounding is a feature that Pixie handles particularly well and easily: for example, the world background of the cover chart was imported as clip-art, sized to fit the graph (two presses

Sharp's JX-100 has three big pluses: color, portability and ease of use.

Computer Associates has released a Windows version of that Macintosh graphics stand-by, Cricket. It is especially useful for presentations based on technical material – the extensive data manipulation features, curve fitting, 12 graph types and multiple data formats are all designed to help make sense of reams of data. The system is sold as two separate modules: Cricket Presents ($595) is the full-featured organiser, and Cricket Graph ($255) is the creator; for more information contact Computer Associates, (02) 9232066; fax: (02) 923 2139.

of F6), then two clicks of the mouse to color the background and another to specify 'shaded'. It's not possible to change the coloring of the imported image: it will always appear to have been reversed out of the color background.

The range of standard screen fonts in Pixie is adequate, as is the range of styles and point sizes available. Text manipulations are limited to centered, flush left and right and three choices of line spacing for each block of text. A spelling checker here is a big plus – with all the subtle hues and colorful graphics on-screen, its easy to overlook something as mundane as correct spelling until it's on-screen in front of 200 rapt viewers.

DDE is going to prove one of the most useful of new PC applications – it's a shame that there are so few applications that support it.

Pixie actually has two completely different sets of fonts: one for on-screen and export use, the other for the installed printer. This can be a real nuisance: for example, the on-screen fonts for our printer weren't readable (the text was all 'scrunched up' and overlapping), so it was necessary to work in the screen font and then change it before printing out – this makes a joke of WYSIWYG and for real irritation when adjusting the print-out.

The Slide Show facility only allows all or pre-selected slides to be shown. At the end of a presentation, if you want to re-show several slides during a discussion, it's necessary to start from the beginning and run forward to the required slide. That can make the presenter look like an amateur – and 'glitches' like this can seriously detract from the effect a presentation has on audience.

Speaker notes can be created in a similar fashion as it is done in Freelance, with the added advantage of being able to use the Windows Clipboard.

For those who need to create periodical reports or presentations, Pixie's support for Dynamic Data Exchange (DDE) can be very handy – for example, if the data for

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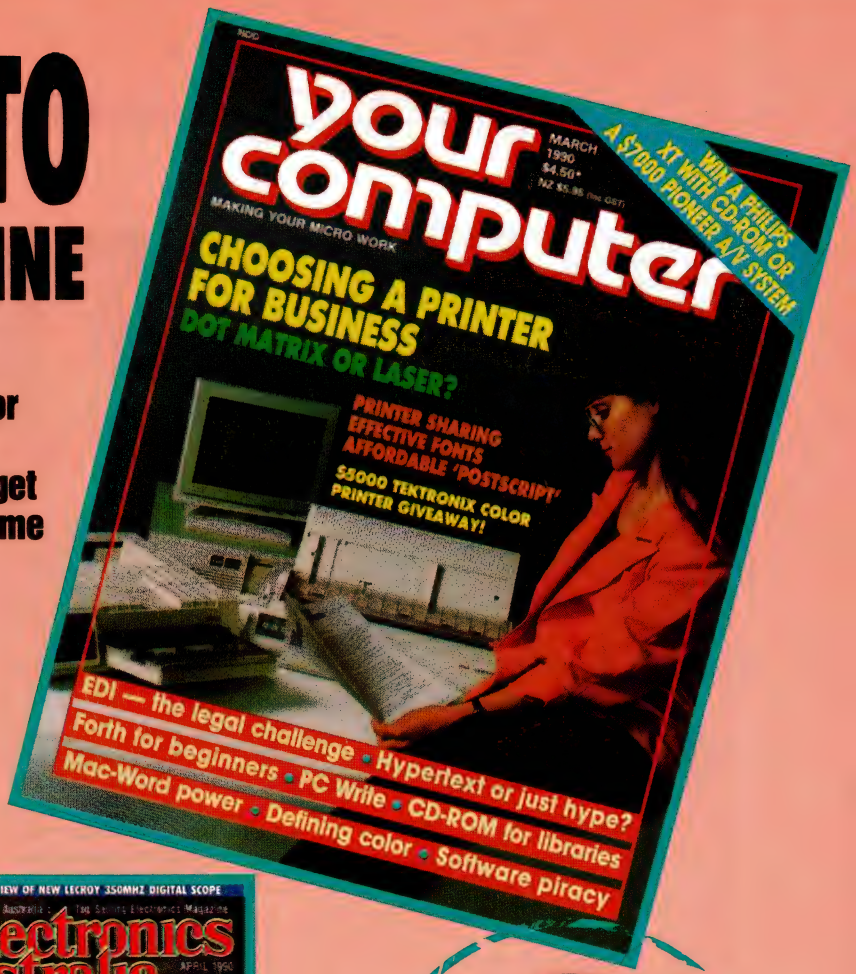

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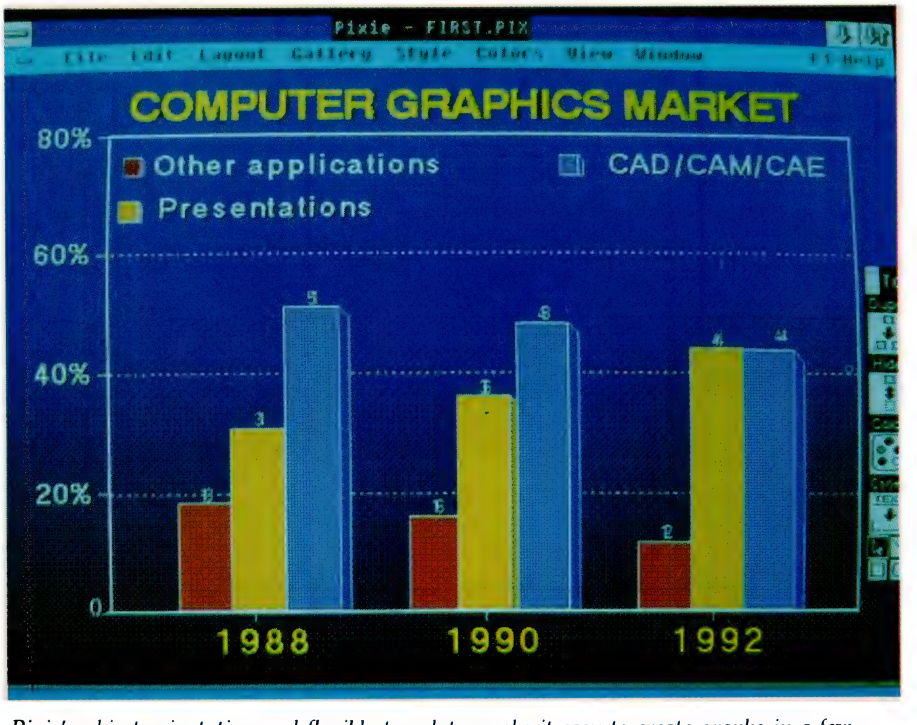
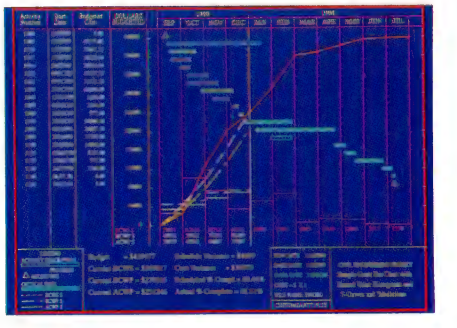
Melbourne-based Lako Vision is known in the industry as the distributor of Concorde, a high-end video creation package. The company has now moved into production services for outside clients, taking computer generated graphics and animations and 'packaging' them for use in marketing and training on video tape or a floppy disk. Evan Kourambas marketing director for Lako noted that 'desktop video as a sales medium is particularly applicable in markets where competition is fierce, and where it's pretty hard to stand out from the crowd . . . A desktop presentation in the form of a floppy goes directly to your target audience, often on a one-to-one basis.' For more information contact Lako Vision on (03) 525 7288.



Pixie's object-orientation and flexible templates make it easy to create graphs in a few minutes – for example, clicking on any of the graph bars brings up a dialog box into which new values are entered, or the bar can be dragged to a new value, and clicking on the color and altering its color, changes the color of the bars.

the report is kept in Excel, once a link is established, updating the spreadsheet automatically updates the graph. DDE is going to prove one of the most useful of new PC applications – it's a shame that there are so few applications that support it.

EnerCharts is in the same family as Pixie, but as the price reflects, it's in a different league. This is a package that has one purpose: the easy creation of fancy charts – and that it does well. It does lack the graphics-orientation of Pixie, but it implements the Windows interface well.



CustomGantt Plus is a project management package with presentation graphics incorporated. In addition to a full-range of project management features, the package can super-impose S-curves, histograms and bar charts; it supports imports from most other similar packages, 1-2-3, Quattro, dBase, Clipper and a number of others. It's priced at $480 ($600 for a 4-user Unix version) and is available from Oztec, (07) 835 0427; fax (07) 264 3144.

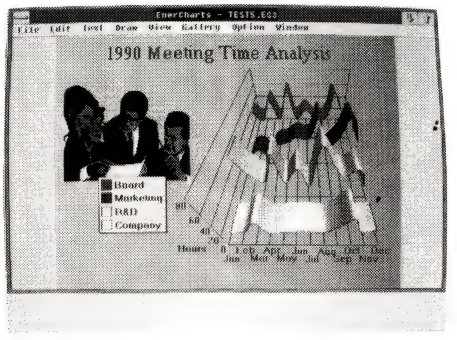
The developers, Enertronics, have given users a Data Sheet in which values for the graph are entered. Both the graph (a scrunched version) and the data can be on-screen at the same time, so changes are seen immediately – unfortunately, this is only a one-way link as a slice of a pie chart, say, can't be selected and re-sized directly like it can in Pixie. All editing functions for the graph are available while the Data Sheet is on-screen.

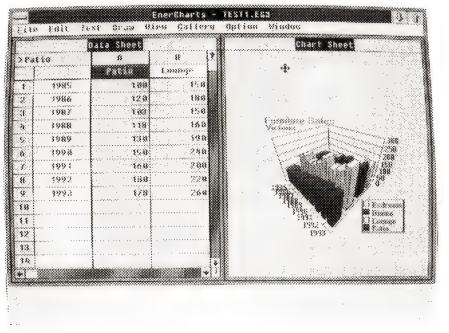
While 2D graphics can be generated (by rotating the z-axis to 0 degrees), the defaults are all 3D. There are 3 choices for viewing each graph (Perspective, Isometric and Oblique) and it can be rotated in 1-degree increments around each of the 3 axes; re-sizing the graph is also easy. This last feature is important given the other manipulations that are possible: each time the point of view is changed, the graph will most likely need re-sizing.

EnerCharts should only be used by those who have previous experience with a presentation package – it is too easy to create an impressive looking, but totally confusing graphic. In the right hands, it can be a powerful tool for giving a memorable presentation to large audiences – or for adding spectacular images to a PageMaker or Excel document.

There is no facility for creating text or bullet charts and there are no drawing features – this is a package intended graphists only. The supplied clip-art is quite limited and all 2D – the images look very flat next to the 3D graphs. EnerCharts doesn't offer the same level of color and shading control that Pixie does, but it is still more than adequate.

Overall, Pixie is the more flexible package of the two and should be considered if a presenter needs to address a variety of audience sizes, and needs to work in a variety of formats. This package is at the leading edge of PC presentation graphics and offers features that others will be trumpeting within 12 months. While EnerCharts is more limited than Pixie, it is very good at making it easy to impress an audience – and the bigger the audience, the more suitable are EnerCharts graphics.





EnerCharts 3D was designed to produce fancy graphics quickly and should be used with care – note the split data/chart screen in the bottom chart.

Output

CREATING GREAT presentation graphics is all very well, but most often showing them on a computer screen is impractical for audiences greater than 2 or 3. Also, as mentioned earlier, for that professional look the graphics need to be output to a high-quality color printer or a slide centre. Another option is to desktop publish the presentation if it is primarily text-based, including B&W versions of the graphics. Recently we have seen systems that do an excellent job of combining videos with computer graphics, but these are still in the professional league.

As IBM users have become accustomed to graphical interfaces offered by the likes of Windows, NewWave and many other new applications, they have demanded more from their own computer-generated presentations.

If presentation graphics are imported directly into a desktop publishing package for printing to a laser printer, the color will be lost and the best resolution available (300 *x* 300dpi) is going to make the graphics look grainy or chunky. There are a number of ways to work around this.

First, the graphics should be designed with DTPing mind from the beginning. Colors should be chosen carefully – different colors will appear more or less grey depending on the software and the printer itself – some experimentation will soon show which work. Your could use a B&W version of the graphic for output to the printer, but it's easier to only have one and select the colors appropriately. Resolution can be stepped up using an add-on like Intel's Visual Edge system – $1226 for the AT version ($1552 for MCA) will double the resolution and give you a print spooler to boot; 4Mb of EMS memory is required to take full advantage of the system.

The next step up from that is to turn to a typesetting bureau or to use an inhouse plain-paper typesetter. The latest of these to be released is the LaserMaster 1000, which can give a resolution of 1000 *x* 1000dpi and completely eliminates the jagged edges of large type and produces crisp graphics. For the publication of manuals and other documents intended for wide distribution, a system such as this is almost essential to give a professional appearance – for that, the $16,650 price can return good value. For more information, contact Software Product Support, (02) 981 5588; fax (02) 811 9934.

Generally, though users will settle for the best they can do with the an in-house laser printer. Aside from the lower quality of the results, the speed of output can be a 'drag'. This is particularly true if you have asked the printer to collate the pages as they are printed – a quoted page per minute (actually a measure of the drum speed) figure becomes irrelevant when collating since the printer needs to treat

Product Details

Product: Freelance Plus 3.01
Distributor: Lotus Development
Ph: (02) 287 1900
Fax: (02) 261 4899
Price: $855

While it has its limitations, there are features that can make it a 'must have'.

Product: Pixie 2.0
Distributor: Technical Imports
Ph: (02) 954 0248
Fax: (02) 925 0311
Price: $650

This package is at the leading edge of PC presentation graphics and offers features that others will be trumpeting within 12 months.

Product: EnerCharts 3D
Distributor: Technical Imports
Ph: (02) 954 0248
Fax: (02) 925 0311
Price: $300

It is very good at making it easy to impress an audience – and the bigger the audience, the more suitable are EnerCharts graphics.

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each page as a new image, load it and then print it; usually it's much faster to print the required number of pages in one go and then collate them by hand after.

Presentation slides

THERE IS NO more visually impressive way to put the message across to a large audience than with a collection of professional-looking slides. If you are interested in producing slides inhouse, Polaroid have just released the CI2000 film recorder which works with an AT and an EGA monitor to output 2000 line per inch (lpi) slides and overhead projector transparencies. It works with all of the most popular packages (including the ones mentioned here); the software is menu-driven and auto-configuring for the computer system.

The system can automatically compensate for variations in the incoming video signal and there is an electronic zoom for touching up. The price is a reasonable (in this market) $2900 for the CI2000 and $4000 for the C2200 which gives greater resolution and faster throughput. Only 16 colors from a palette of 4096 are possible with these units, however, so some of the

Barco's 33-inch flat Multidata OCM3346 monitor is ideal for for animated presentations to medium-sized audiences.

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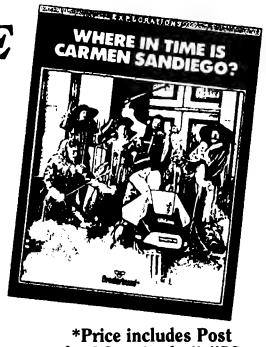

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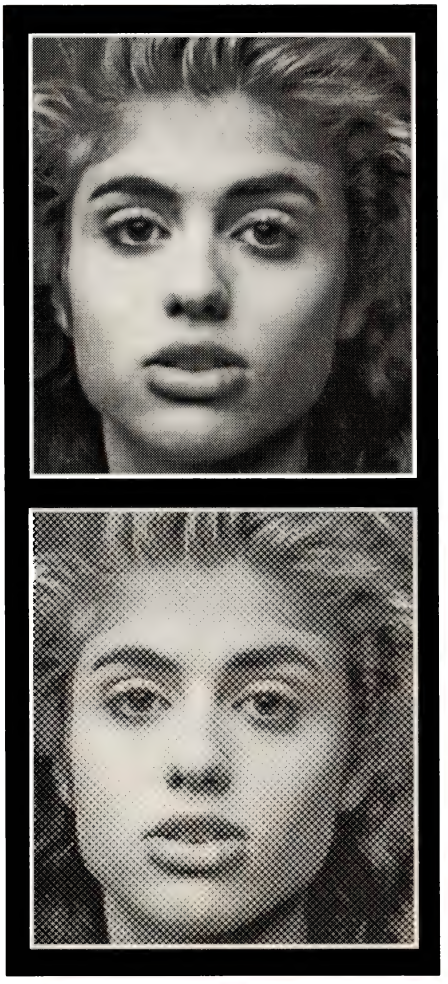
subtle variations of color will be lost. For more information, contact Polaroid on (02) 887 2333; fax, (02) 887 2209.

The highest quality results will come from a professional slide bureau. Until PCs became powerful enough to be used for graphic work, presentation graphics was the domain of dedicated workstations. One of the manufacturers of these workstations is Autographix, a company that realised the potential for PC-based presentations. About three years ago, the company successfully negotiated with virtually all of the major suppliers of presentation software, so that an Autographix driver is included as standard with the software from these companies. In fact, this driver goes a lot further than a mere driver, even to the point of including its own communications utility for actually dialing up the local bureau. The Sydney-based Computer Slide Center is the authorised Autographix centre in Australia.

One of the features of the Autographix system is its font support – all fonts which are available on-screen in a given package will appear on your slides (at a higher resolution, of course). The service includes printing on a range of special backgrounds which are held on file, or generating a custom background (such as a company logo) which can be combined with the images when they are being printed.

The heart of CSC's operation is a $100,000 Celco film recorder. This machine, the size of a small fridge, has a resolution of up to 8000 *x* 8000 pixels (although for 35mm film, there is no point in going beyond 4000), and can produce 16.8 million colours (24-bit colour). This allows curves to appear perfectly smooth, and vignettes appear as smooth transitions from one colour to the other. The recorder takes bulk 35mm film, allowing up to 800 shots to be taken without reloading, and produces completed transparencies at the rate of one slide every 40 seconds.

One of the disadvantages of producing slides with your own film recorder, aside from their lower resolution (typically 1000 *x* 1000 pixels), is processing the film afterwards. How many instant photo labs do you know who process E-6 (slide) film on-site, and turn it around the same day. The Slide Center has its own E-6 processor, and processes all slides on the premises as soon as they emerge from the camera. With a same-day or overnight turn around, slides can be delivered to your door by courier faster than most photo labs could turn your film around.



The next step after a laser printer, is an inhouse plain paper typesetter. Systems like the LaserMaster 1000 can give a resolution of 1000x1000dpi (top) and completely elimate jagged edges in type and graphics.

The film recorder is connected to an Ethernet network based around a DEC MicroVAX and several PC and Mac computers. Four incoming phone lines with 2400-bps modems are online 24 hours a day, so that users can download files at any time. Slides uploaded by 5pm will be processed overnight and despatched the next morning. Typically, the bureau produces 400 slides a day, although their capacity is about 1500 per day, which is reached sometimes when several customers put a large number of slides through at once.

Prices start at $12 for a single slide and drop to $9 for large quantities. The Computer Slide Centre is located in George Street in Sydney, and can be contacted on (02) 261 4633; the company also has branches in Adelaide and Melbourne.

Another method of presenting information to a large audience is to use an LCD panel which is placed on top of an overhead projector, and runs in parallel with (or in place of) the computer's regular screen. With most laptops having an external monitor port, a portable presentation system need only consist of three components: a projector, a computer and the LCD panel. The panels use active-matrix technology which is too slow for animation, however.

Until recently, all of these screens were monochrome, so that for colour presentations (and who *doesn't* use colour in presentations), slides still had to be made. Electroboard is currently marketing a colour LCD screen for overhead projectors from In Focus Systems in the US, which gives 8 colours on-screen, and a 64-colour upgrade should be available by the time you read this.

It is priced at $8495, which includes the upgrade to 64 colours, when this becomes available. The units are also available for hire; contact Electroboard, on (02) 957 5842; fax (02) 922 1885.

If your company does a large number of presentations, it could be worthwhile considering two products from Barco, a well-known name in large screen projection systems. The first of these is the Multidata range of large-screen color monitors. The OCM3346 (top of the range) has a 33-inch flat screen. Priced at $7300, the system includes remote control and audio and is compatible with Hercules, CGA, EGA, VGA, S-VGA, 8514/A and Mac II systems.

The second is the Barcographics 800 projector, a professional unit designed for seminar presentations and other large audiences. The price is professional, too – $28,000 – but that provides a very intelligent machine. For example, once it has been set up and adjusted for a particular presentation, the configuration can be saved in one of the 38 available memory banks. This eliminates the annoyance of having to adjust the projector every time it is used. The 800 also makes adjustments for convergence easy through a menu system. The distributor for Barco products is Trace Technology, (03) 646 5833; fax (03) 646 5887.

Presentation graphics has now become a well-developed area in information technology and offers the opportunity to increase effectiveness and that all-important competitive edge. Mastering all of the necessary techniques and technologies isn't an easy task, but the results will be worth it. □

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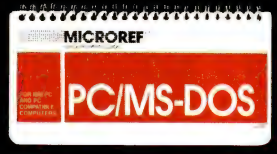

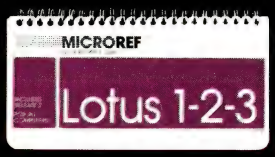

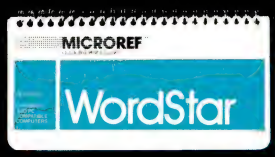

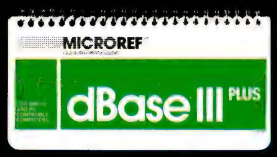

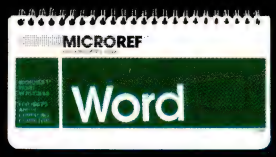

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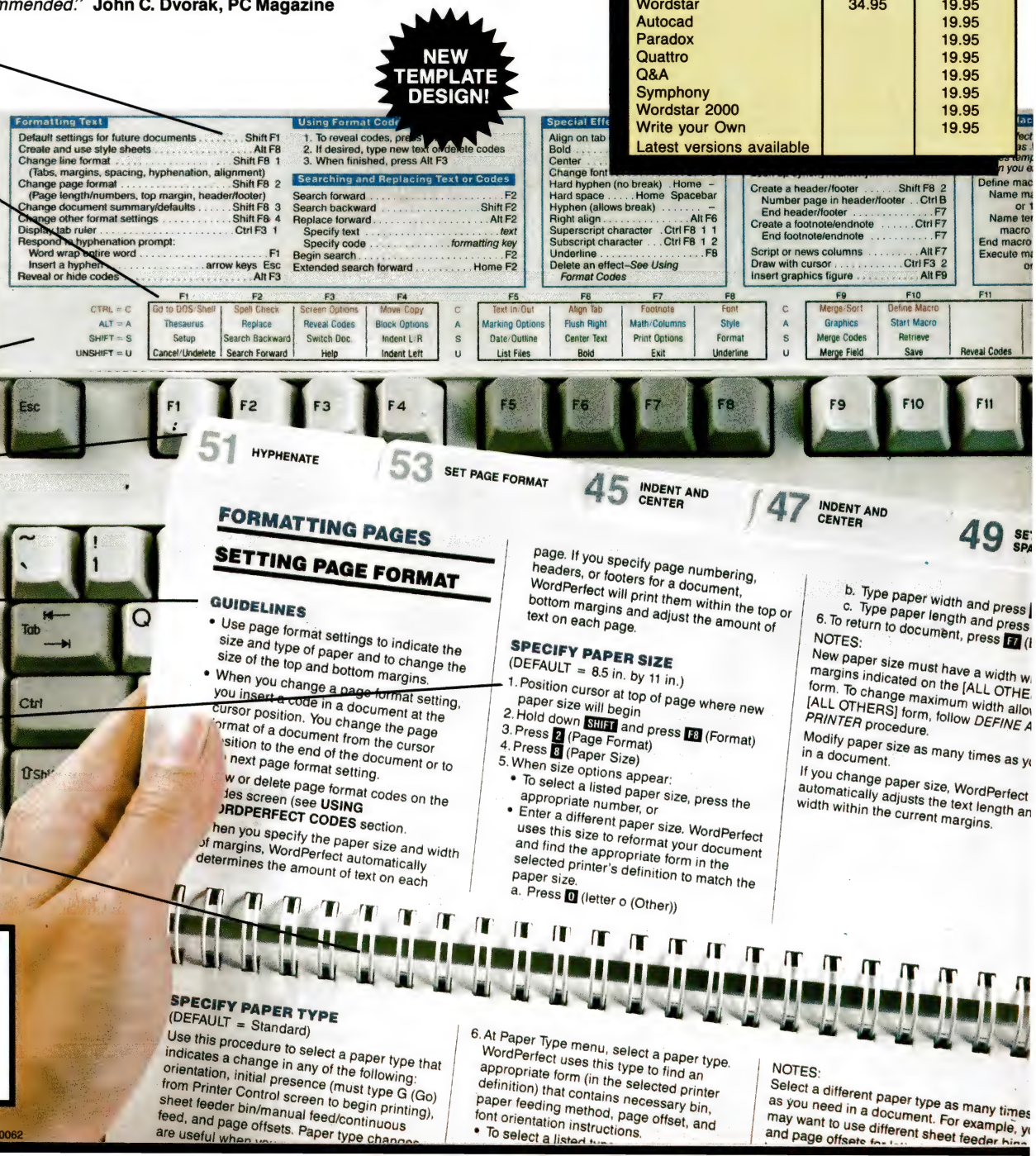

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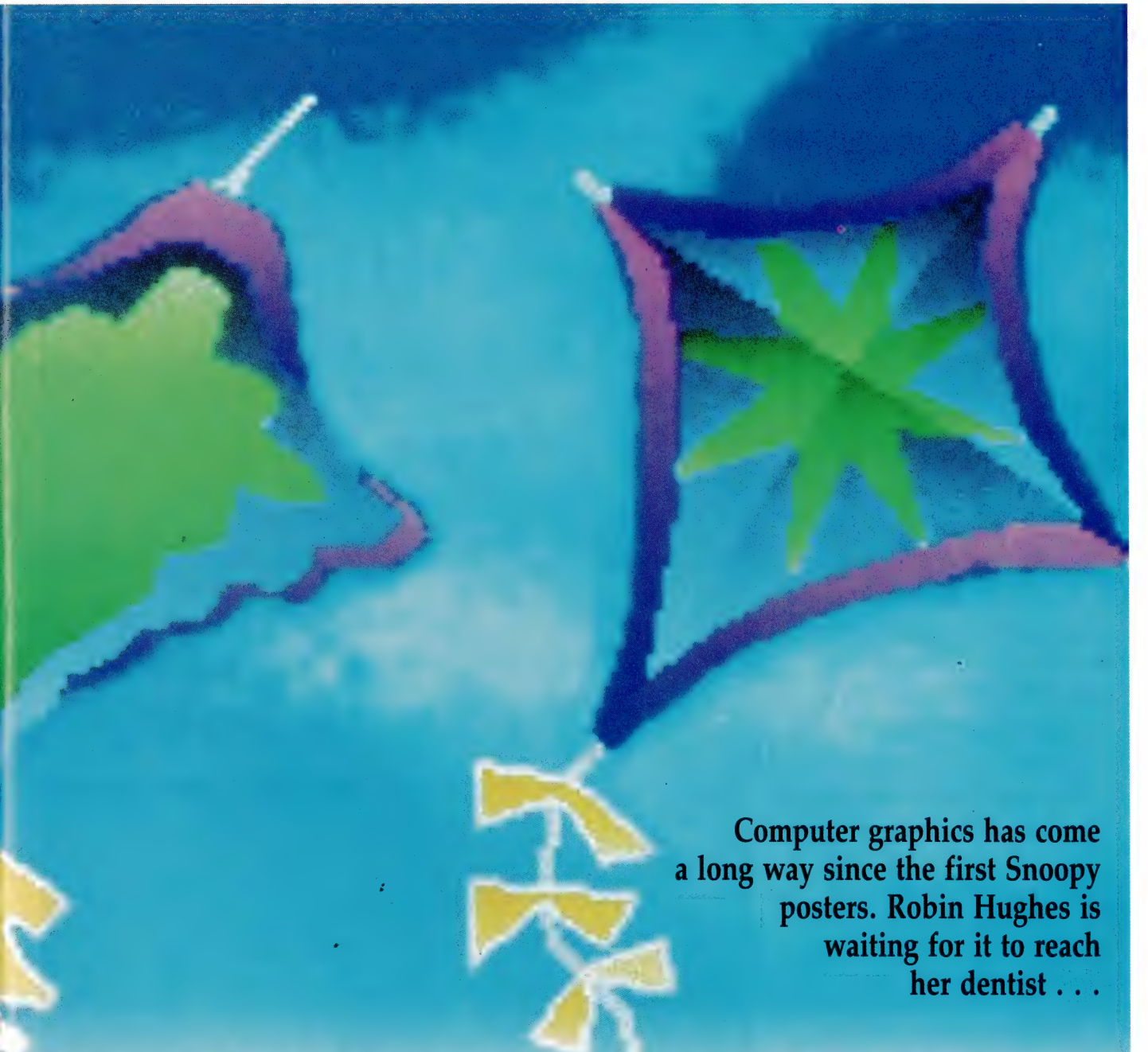
COMPUTER GRAPHICS

TODAY AND TOMORROW

VISUALISATION, multimedia, stereolithography, virtual reality, video graphics – today's world of computer graphics is a far different one from that of only 10 years ago when Australian architects and engineers started to discover that computers could actually be used to produce drawings and the rest of us were playing with our first "presentation graphics' (usually a Snoopy calendar, or some such).

These early attempts at CAD (computer aided design) allowed you to perform such miracles as placing two dots on a screen and telling the computer to join them, without you actually having to draw the line. Today it has to sing, dance and do tricks – all in color of course. Computer graphics is penetrating all areas of our



Computer graphics has come a long way since the first Snoopy posters. Robin Hughes is waiting for it to reach her dentist . . .

lives, from doing the shopping to designing our homes and even going to the dentist, but more on that later.

The applications of computer graphics covers virtually every field of business and the professions, from presentation graphics for business information purposes, to mapping and cartography, graphic arts, medical analysis, architecture and engineering, space research, and just about everything in between. Let's look in detail at some of these applications and see where they stand in terms of current technology.

AEC

THE AEC (architecture/engineering/construction) disciplines were among the earliest users of computer graphics in the form of the original CAD systems. These were used basically for design and drafting applications, and enabled savings in time and money because of the ease with which drawings could be changed to suit client or other needs.

Today, the emphasis is switching from simple design work to client presentation, either in the form of stills or animation. As with most major computer graphics applications, the availability of affordable PC-based animation systems is having a very strong impact in the AEC field. Rather than showing the client a series of drawings of a proposed design, the architect or engineer can produce a walk-through or fly-over, and show in three-dimensions what it would be like to be in or around the construction. Apart from the aesthetic excitement of being able to show just how it would feel to be inside a building, an animated presentation can have other benefits. For example, when designing a new road, the computer-generated design can be merged with photographs of the proposed route, and 'driven along' to check visibility and safety factors.

Architects and designers can also use computer graphics to show the client how colors and textures can change the mood of a building. Windows, doors and other building components can be altered and moved in front of the client, and the whole design of a building, including all fittings and even furniture, can be finalised on the screen.

Animated presentations can also be very useful when a building concept has to

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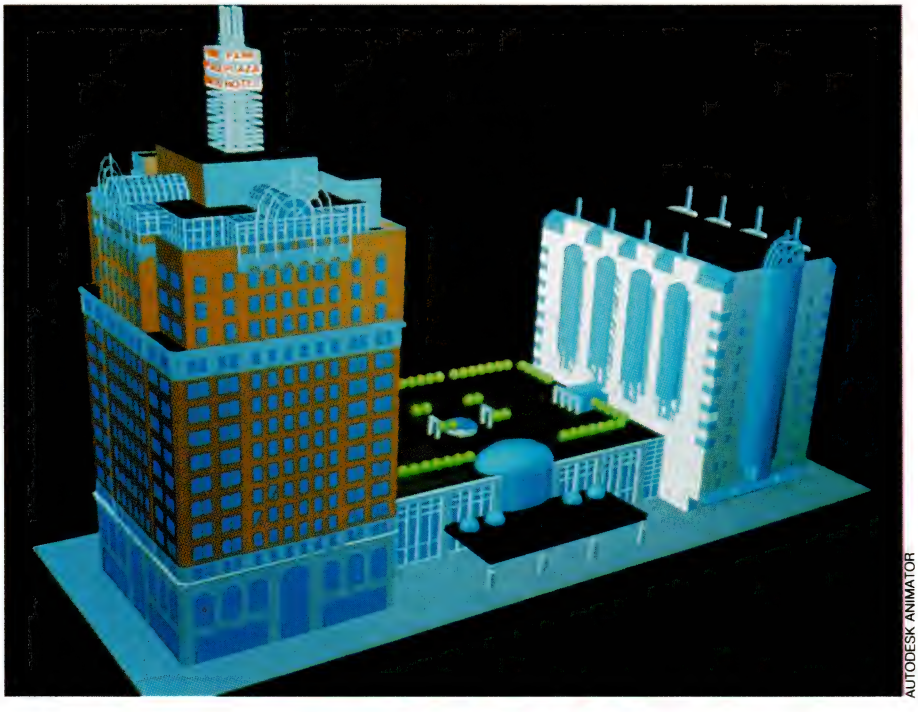
THE COMPUTER SLIDE CENTRE

'Visualisation', the current technology in workstations, is still to come for PCs, but the high degree of realism and very smooth motion in animation will offer a very seductive selling point in high-end applications.



AUTODESK ANIMATOR

Rather than showing a client a series of drawings of a proposed design, an architect or engineer, with the use of computer graphics, can show in three-dimensions what it would be like to be in or around the construction. With packages like AutoCad 10, the design of the windows, say, could be changed while the client watched – this 'real-time interaction' can save months on complex design work.

be sold to a client, for example, in the case of a developer who has to gain approval from the authorities. The proposed building can be viewed from all angles on its site, and the effects of shadows, reflections and other environmental factors, can be shown exactly as they will occur.

And, as with all areas of computer graphics, today's sophisticated systems can provide all this in images of virtually photo-realistic quality.

Known as 'visualisation', the current technology in workstations, still one step above personal computers both in power and networking capabilities, enable a high degree of realism and very smooth motion in animation that is a very seductive selling point in high-end applications.

One area in which visualisation is becoming very important is that of product design, both from the marketing point of view and to enable accurate tooling and production of the items.

In conjunction with tools for product testing, such as finite element analysis software which enables the on-screen graphical analysis of engineering factors such as stress, the engineer can optimise and display a product design, then generate the software to run the production machinery. All prototyping and testing can be done on-screen as part of this process, eliminating the need for a model building. However, if a model is required, there is an even newer technology called stereolithography which can produce an object from a mathematical model stored in the computer. The computer can generate a set of layer cross sections of the object, as thin as 0.005 of an inch, which can be used by the stereolithography apparatus to build complex plastic parts by successively printing cross sections of photopolymer plastic on top of each other until all of the thin layers are joined together to form the whole part.

The potential for stereolithography techniques is enormous, and includes fields such as medicine where, using the techniques, bones can be modeled from Cat scan data for use, for example, in facial restoration.

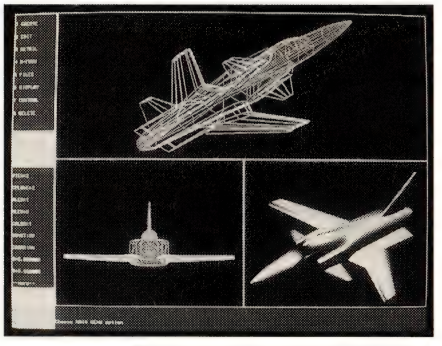
Medical research

ALSO IN THE medical field, computer graphics simulation is enabling some laboratories in the US to test new chemicals, pharmaceuticals and cosmetics on the computer instead of using animals.

Computer graphics techniques can be used to simulate the activities of living cells and also to simulate, on the screen, the affects of chemicals, viruses and so on, on biological systems. Using today's systems, researchers are able to get a precise picture of how cells divide, interact with each other, perform and respond to external factors and environments.

Studies using this technology include the recognition and classification of tumor promoters, the analysis of human chromosomes to detect genetic diseases, and other disorders, and the assessment of lethal dosages of drugs.

Computer models have also been developed to provide valid alternatives to tests such as the Draize eye-irritation test, usually performed on rabbits and is one of the more horrific forms of animal testing.



Design packages such as CadKey 5 can also be used to test designs on-screen for engineering factors such as stress. Once a design is finalised, the software can generate instructions to the production machinery.

Another area of research which is widely using computer graphics techniques is that of environmental studies. With worldwide attention focused on the effects of natural and unnatural phenomena on the earth's environment, scientific researchers use data gathered by remote sensing devices and manipulate and analyse it using computer graphics and imaging techniques. These techniques can assist them to monitor changes in the earth's surface and atmosphere over a period of time or, using simulation techniques, they can carry out 'what-if' scenarios to look at possible future effects. Such techniques were used, for example, in the US recently to establish the ongoing effect of farm fertiliser run-off on an area of wetlands, to analyse the impact that the Alaska oil spill had on the area's wildlife, and to show changes in temperature due to pollution and variations in the ozone layer. An extremely important international project using this, and newer technology currently being developed, is due to commence later this decade.

A 15-year program is to be undertaken to gather satellite data on global environmental trends, commencing in 1996 with the launch by NASA of our unmanned space platforms carrying remote sensors which will send the data back to earth. From this project, scientists will receive information on the relationship between changes in the earth's biology and seasonal change, on oceanic and atmospheric conditions, on the depletion of the ozone in the atmosphere, and also on the location of natural resources.

At the business end of the computer graphics spectrum is presentation graphics, where images are used for information or marketing purposes. Presentation graphics is currently one of the fastest growing fields of computer graphics; this is mainly due to the availability of affordable, personal computer-based systems for the production and output of color material such as slides.

Also, a drop in the price of desktop scanning devices has meant that photographs and other artwork can be easily be incorporated into the design of presentation material. Executives or their assistants can produce material incorporating graphics and alphanumeric data to give them professional presentation images for corporate and client meetings.

Animating computer graphics makes sense in many areas other than just the artistic, for example, structural engineers could animate the framework of a complex building or plant design to check on clearances, but it is in the graphic arts and cartoon animation fields that it receives the most attention.

The integration of live video with computer animation is now possible and is opening up new horizons for advertising agencies and film production houses. The technology for video/computer integration at the input and output stages is still somewhat cumbersome at both the personal computer and workstation levels, but in the not-too-distant future, we should see the integration of video and graphics in an interactive, multimedia environment.

Virtual reality

VIRTUAL REALITY has been described as the technology of the future which will allow us to create our own worlds to explore, interact with, and change. An example of this is seen in the movie *Star Trek: The Next Generation*, which contains a

room called a Holodeck which can create apparently real scenes and images, complete with moving characters.

The Holodeck is an illusion, but technology is actually moving towards the stage where apparitions such as the Holodeck could actually be used in a variety of applications. Imagine, for example, a medical student working with a simulation of the human body instead of a real one, or a student being able to walk along a street in ancient Rome to get first-hand knowledge of the civilisation.

VPL Research, of California, has already created a virtual world in the form of a model of a day care centre. People can walk 'inside' it and, using hand gestures, can change their size and see the room either as an adult or a child would.

VPL is the manufacturer of several virtual reality tools including the DataGlove – a film of which was recently shown in Australia by Autodesk.

Autodesk is researching a concept called Cyberspace, which allows a person to 'fly' around virtual space with the aid of a head mounted display with two color LCD displays that project a stereoscopic image to the eyes, the DataGlove for tracking hand movement and position, and a three-dimensional joystick for movement.

The potential for stereolithography techniques is enormous.

VPL has also developed the DataSuit which captures, records and renders the movement of the human body. The suit covers the body from neck to ankles, with the position and orientation of joints being registered by sensors.

Other research into virtual reality is being carried out by organisations including NASA and the University of North Carolina. Researchers at the MIT Media Laboratory in Massachusetts are looking at ways to develop software to add realism, such as tactile feedback, to virtual worlds.

Virtual reality could have an enormous impact in the educational and entertainment fields, but that is still quite a long way down the tracks.

But not so far away, at least if you're in the US, is a method of making crowns for teeth which could make future dental visits, if not absolutely fun, at least a whole lot simpler.

At present, having a crown made usually involves at least two lengthy visits to the dentist, with temporary material to go in and out, impressions to be made, pain, agony and so on. The new procedure involves CAD/CAM techniques and takes roughly one hour in total to perform. An imaging workstation with a laser probe is used to take live images of the tooth to be restored. The dentist designs the prosthesis interactively on the screen, and then the data is transmitted to a CAM workstation which automatically mills the prosthesis. The dentist can then fit it on the spot.

Systems such as this are already being marketed and used in the US and Europe. When my dentist buys one, I will know for sure that my faith in the future of computer graphics for all these years has been justified. □

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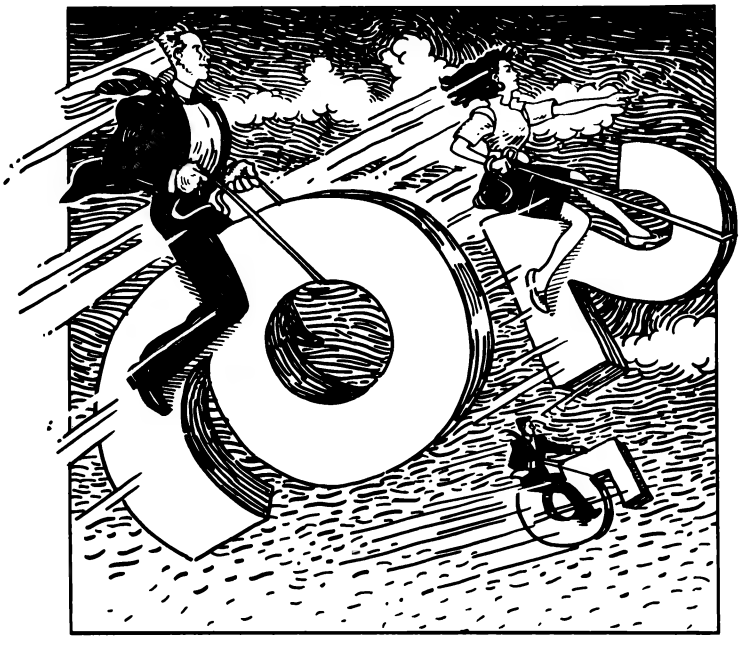
As soon as you switch on to Lotus 1-2-3 you'll do things with figures you never thought possible.



Lotus® 1-2-3™ (Release 3* and 2.2**) now allows you to do amazing new things with figures.

In the way you work with them, as well as in the way you present them.

Both Release 3 and Release 2.2 give you the finest range of graphic capabilities you will ever see in a spreadsheet. Release 3, for example, allows you to view spreadsheet and graph on the screen at the same time, with the changes in one being instantly reflected in the other.

It also allows you to publish them together on the same page. And the superb spreadsheet publishing capabilities of Release 2.2 now make it so easy for you to produce professional-looking documents.

And there's more. Release 3 gives you a perspective never before available in a spreadsheet: true, three-dimensional capabilities that allow you to work on up to 256 different spreadsheets at the same time.

Release 3 also allows you to work on figures from your own or external databases.

Importing them directly to your spreadsheet, *without leaving* 1-2-3.

For raw power, speed and ease of use the Lotus 1-2-3s are simply light years ahead of any other program. Yet everything you've ever learned on earlier versions of 1-2-3 – the commands, your files, and even the macros – are still applicable.

So your time and financial investment in 1-2-3 remains secure.

There is only one spreadsheet that will allow you to do such extraordinary things with figures.

Visit your Lotus Dealer now or to order your upgrade call Lotus Upgrade Department at Imagineering on 02-663 8755 or Tech Pacific on 02-697 7111.

Recommended retail price, 1-2-3 Release 3.0 $995, 1-2-3 Release 2.2 $855.

Lotus 1-2-3

Purchase 1-2-3 Release 3.0 after May 7, 1990 and you will be eligible for a complimentary 1-2-3 Release 3.1 upgrade.

*Lotus 1-2-3 Release 3 requires a 286 or 386 based PC with 1Mb RAM for DOS or 3Mb for OS/2. **Release 2.2 is recommended for 640k computers in DOS.

Adventure LTS 030C/R

1990 - THE YEAR OF MEMORY

The price of memory has kept many potential users away from presentation graphics. Hypertec's David Cunneen tells why that's changing.

One year ago a typical large memory board carried less than 1Mb of memory. Today the average is more than 4.3Mb per board. That, according to David Cunneen, managing director of Australian memory board builder Hypertec, summed up how demand for memory is soaring. '1990 will go down as the Year of Memory,' he said, forecasting that demand would increase even further this year, providing a fruitful opportunity for Hypertec, which builds memory boards for the entire IBM PC range and compatibles.

Cunneen said memory was a hot item for corporate users, because prices had plummeted and because of the rapidly increasing availability of memory hungry software such as that used in graphics and spredsheets as well as OS/2 and Unix.

'Gradually, as one megabit production became more established, supply improved and prices fell. We think one megabit production is now at its peak. Today's prices make the large scale introduction of operating systems like OS/2 and Xenix and software such as Lotus Release 3 and Lotus 1-2-3 G an economic proposition for large companies and government.' ***– David Cunneen, managing director of Hypertec.***

'As a major purchaser of memory chips, we make it our business to follow the market closely. Twelve months ago a megabyte of memory sold for $940 recommended retail, making 8Mb a hefty $7520 (plus board). That was often more than the price of the gear it went into and made the use of more sophisticated software very expensive to implement.'

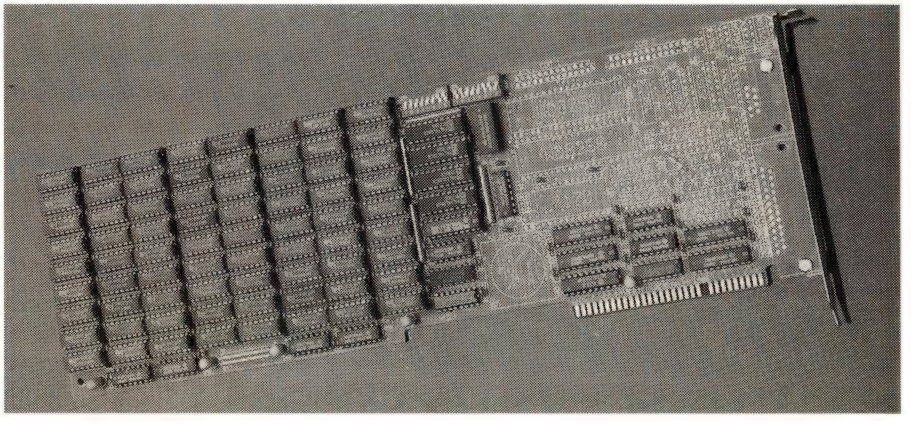
'Today, however, memory prices have fallen to the extent that a megabyte retails for around $255, bringing 8Mb to $2040 (plus board). That's a massive 73 per cent reduction in 12 months, which most PC users are simply not aware of.'

Cunneen explained the recent prices fall: 'Eighteen months ago, one megabit chips were just starting to find their way on to the market. There were only a couple of manufacturers capable of producing these chips in quantity, so supply was scarce and, consequently, the price was high.'

New addition

THE LATEST addition to the company's Hyperam memory board range is the Hyperam MC 32/16 expanded/extended board. Designed for use in Micro Channel machines, the board offers from 512K up to 8Mb of memory, with 16- and 32-bit compatibility.

Dual compatibility is an important unique benefit as it allows the board to run as a 16-bit board in machines such as the IBM PS/2 models 50, 50z and 60, and as a 32-bit board in the models 70 and 80. Hyperam MC 32/16 is now available with 32Mb. Other in the range include Hyperam '286 which offers up to 8Mb of expanded and/or extended memory for 80286 based machines; Hyperam Extend with up to 8Mb of extended memory for AT machines; and Hyperam offering up to 2Mb of expanded memory for traditional PC and XT machines. Cunneen cautioned that although prices had fallen, there were signs that they would remain at current levels. 'We are now seeing the gradual introduction of 4Mb chips. Gradually, production will switch to these at the expense of 1Mb chips. Combine this with current high demand for 1Mb chips and you have the stage set for some price rises.' □

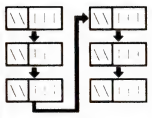


Presentation graphics needs huge chunks of memory – and Hypertec's Hyperam boards offer a solution to MCA users.

Create your own programs..

Matrix Layout

...without having to learn or use a computer language.
Matrix Layout 2.0 contains everything you'll ever need to build your own programs.

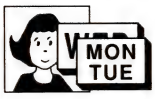


FlowCharts

The first step is to create a diagram of your program by using the *FlowCharts* tool. *Matrix Layout* already has Flowchart blocks built-in. Then there is the choice of hundreds of objects to give you all the functions you'll ever need. You can also add your own specialized objects which can be saved in *Matrix Layout* for later use.

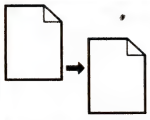
Paint

The second step (if you like) is to use the *Paint* function to add pictures or buttons to your program. *Paint* has a full pallette of graphics tools that enables you to draw an image, which can be placed into your program. You can even scan.



Cards

The third step/or option is *Cards*. This lets you build a database of cards containing either text, graphics or buttons. You can link together various kinds of cards, then use them in your program.



Convert Files

Now that you've created your program the last thing to do is save. *Matrix Layout* will automatically create a ready-to-run .EXE file or create the finished source code in Microsoft C, Turbo C, QuickBasic, Turbo Pascal or Lattice C. ($100 extra for dBASE)
$325 to create your own programs quickly and easily.

Information

For more information on Matrix Layout 2.0, simply send us a copy of this advertisement with your business card attached.

SOFTWARE Express

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VERBATIM DISKS

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DESCRIPTION	1-9 BOXES	10+ BOXES
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3 1/2" 2S/HD	$74.95	$72.95
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5 1/4" 2S/2D	$24.95	$23.95
5 1/4" 2S/4D	$75.95	$70.95
5 1/4" 2S/HD	$32.95	$31.95

HS-3000 HANDY SCANNER

- WIDE 4.13" (105mm) scan width
- 100/200/300/400 switchable DPI resolution
- Four encoding modes: B/W and three half-tone patterns.
- Thirty-two shades of grey
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- Database and high-level language support
- Support for over 150 printers/plotters
- Support for over 225 display adaptors

.....$389

NEW MODEMS

THE XITEL XM-12E MODEM

The XM-12E is designed for applications that require high speed, full duplex data communications such as data base access, file transfer and electronic mail (e.g. Austpac and Keylink) as well as direct communications and other CCITT and Bell systems.

KEY FEATURES:

- 1200 bps Asynchronous (CCITT V.22 B(II) or Bell 212A)
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- Full Duplex data communications on a standard Telecom PSTN 2 wire circuit
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- Automatic data rate selection in both *Originate* and *Auto-Answer* modes
- Compatible with the *Industry Standard* Hayes AT* Command Set.
- Tone or Pulse Dialling with Call Progress Monitoring and Internal Speaker

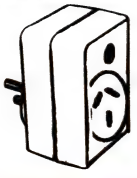
.....$249

BBM 1234E

- Auto V21, V22, V23, V22bis
- Bell 103 / 212A
- Async/Synchronous External

.....$499

SAVE



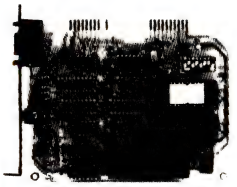
240VAC MAINS SURGE PROTECTOR

Atmospheric dicharges that cause power spikes and surges often occur in the IC's mains reticulation system sometimes causing severe damage to appliances, computers, HI- FI systems etc. Protection of any device can be achieved by simply inserting the PAC15 into the power point and pluging the appliance into the front of the PAC15. Built in MOV circultry absorbs any spikes or surges that enter the PAC15 through the AC power system before they reach the appliance.

An amber light shows you that the unit is in proper working order. If a surge or spike enters the MOV it will break the circut and the amber light will not appear.

This means that the PAC15 has prevented the appliance from being damaged.

X10091.....$29.95



MIDI INTERFACE CARD - DS/401

The MIDI DS-401 Card is the PC standard MIDI interface that runs most popular PC music programs for sequencing, recording, composing, music printing, patch editing, music instruction and many other applications.

- Run all programs designed for the Roland MPU-401 architecture
- Socketed EPROM for easy user replacement
- 1/3 length (short) card will fit in any computer accepting standard expansion card, including laptops
- Including "Y" cable, external connector box to transport is unnecessary

X18164.....$245

"MIDI SOFTWARE" AVAILABLE

IBM* CARDS

GAMES.....$29
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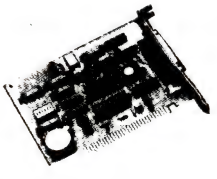
CLOCK CARD.....$39

VOICE MAIL.....$245
PRINTER CARD.....$29
EGA CARD.....$199
2 WAY FDD CONT. (360K).....$39
RS232 SERIAL/ CARD.....$39



RS232/ SERIAL/ CLOCK.....$49
MONO/ COLOUR CARD...$96
MULTI I/O.....$99
512K RAM.....$59
DIAGNOSTIC.....$750
TTL/ PRINTER.....$89

4 PORT SERIAL.....$89
VGA 256K.....$299
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JOYSTICK FOR IBM*

Features selectable "spring centring" or "free floating". Electrical trim adjustments on both axis. 360 degree cursor control

C14205.....$39.95

APPLE* COMPATIBLE

Ideal for games or word processing. Fits most 6502 "compatible" computers.

C14200.....$39.95

APPLE* IIE & IIC SERIES COMPATIBLE

These joysticks have adaptor connectors to suit the Apple II, IIc, IIe and II+ computers. Features include selectable "spring centring" or "free floating". Electrical trim adjustments on both axis, 360 cursor control and dual fire buttons.

C14201.....$39.95

RITRON MULTISYNC VGA COLOUR MONITOR

Quality Auto VGA, EGA, CGA monitor without the excessive price tag!

Display Tube: 14 inch 90° deflection P22 Non-glare, tint. 0.13mm dot pitch
Active Display Area:245 x185mm
Resolution: 800 dots(H) x 600 lines(V)
Display Colour: TTL input: 8/16/64 colours
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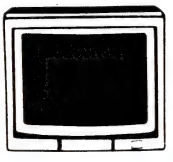
X14528..... $895



RITRON CGA COLOUR MONITORS

Quality monitors without the exorborant price tag!

Display Tube: 14 inch 90° deflection 0.39mm Dots trio pitch. Dark face screen.
Phosphor: P22
Resolution:640 dots (horizontal) 240 line (vertical)

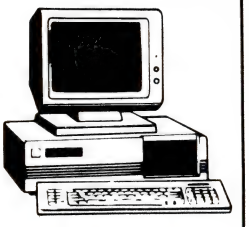
X14526.....$395

RITRON EGA COLOUR MONITORS

Display Tube: 14 inch 90° deflection dot type black matrix. Standard persistence phosphor.
Active Display Area: 240mm x 180mm
Resolution:
64 Colour:720dots(H) x 350 lines
16 Colour:640dots(H) x 200 lines

X14527.....$595

COMPUTERS



IBM* XT* 640K RAM TURBO COMPATIBLE COMPUTER

Check these features and our prices. We're sure you'll agree they're exceptional value for money!

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640K RAM TURBO COMPATIBLE COMPUTER

2 x 360K Disk Drives, Multi-function Card, Colour Graphics, Disk Controller, 1 Serial, Parallel Port (Clock).....$895

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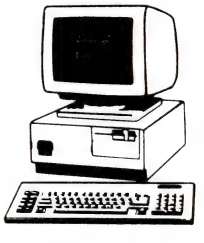

BABY AT* COMPATIBLE COMPUTER! 2M/B RAM $1,695

- Final assembling and testing in Australia!
- 4 M/Byte Main Board, 2 M/Byte fitted
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- 1.2 M/Byte Floppy Disk Drive
- 80286 CPU
- Colour Graphics Display Card
- 8 Slots
- Floppy & Hard Disk Controller
- Printer Card and RS232
- Keyboard
- 200W Power Supply
- Manual
- 6 Months Warranty
- Size: 360(W) x 175(H) x 405(D)mm

With 20 M/Byte Hard Disk.$1,995
With 40 M/Byte V.C. H.D....$2,195
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IT'S NEW

TOUCH MOUSE

A STATIONARY BREAK THROUGH !!!

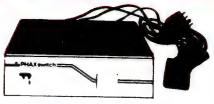
Now you can use your fingers instead of your mouse.

MODELS: ATM- 110 Touch Mouse for IBM PC/ XT/ AT and compatible's, Operates under Microsoft / mouse system mode.

FEATURES:

- User's finger movements on the 58 X 48mm front panel of the touch mouse control the on screen cursor movement.
- With no ball, the touch mouse requires no desk space for movement.
- No pad to get dirty and take up desk space.
- One finger can do all the users drawing.
- Compatible with all existing mouse software.
- RS- 232 serial port
- Especially suitable for laptops, the touch mouse saves on desk space.

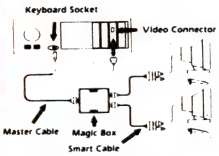
X19960.....$149.00



FAX SWITCH

- lets you connect a normal telephone handset and a fax to the same telephone line
- Detects whether an incoming call is for the phone or the fax and automatically puts it through to the correct unit
- It automatically switches when you pick up the phone or use the fax to make an out going call
- Lets you override the automatic switching and connect the line to either the phone or the fax as you wish
- It is protected against lightning strikes- your fax switch has built in protection against power surges, created by lightning striking telephone lines.

X19090 _____ $289



PC- SHARE

The PC- SHARE Magic Box enables two user workstations (monitor & keyboard) to be connected to one PC.

SPECIFICATIONS:

- Magic box - 20mm X 100mm X 20mm
- Master cable - 600mm
- Smart cable - 2, 4, 10, 40 mt.
- Maximum distance between desks - 80 metres
- Power supply - none required
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- Compatible operating systems - Supports MS-DOS, OS-2, MS-WINDOW, UNIX, PICK etc.
- Monitors - monochrome, CGA, EGA, RGB.
- Keyboards - PC-XT or PC-AT type.
- Leads sold seperatly.

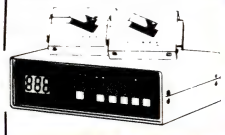
X19088.....$299

AIR IONS GENERATOR

No need for air freshners with our Negative Air Ions Generator.

Just plug it into the cars cigarette lighter and it releases negative air ions into the vehicle....making a fresh driving environment. Odors , smoke and dust are eliminated and a fresh feeling prevails. The product is also good for the respiratory and blood systems.

A15072.....$49.95



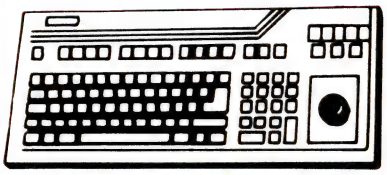
PRINTER BUFFER

PB - 42P PRINTER BUFFER

The printer buffer is for offices or schools which have high volume data to process. Its a time saver. It accepts data from your computer and stores the data in its memory, then feeds the data to your printer at its own speed so that your computer is free for other work.

256K FITTED
CAN TAKE UP TO
1 MEG OF RAM

X19160.....$595



101 KEY TRACKBALL KEYBOARD

The Trackball keyboard is a palm driven mouse which is built into your NEW keyboard.

Above the ball is 3 keys- which allow you, your selections and zooming in and out on work.

The Trackball allows you to keep the feel of your work in the centre of your palm.

Advantages of the Trackball mouse:

- It is more accurate than other cursor controls
- It has more flexibility than other devices.
- It is so responsive that you can move your cursor across the screen in a split second and continue working in another area.
- Distortion free drawing ability.
- Compadability with other major mouse systems
- Dynamic resolution.

Specifications:

- Microsoft serial mouse and PC mouse compatible
- Tracking speed- 900mm/sec.
- Resolution- 200 dpi (dots per ") Dynamic resolution- 100-1200 dpi
- Opto mechanical encoder.

X12030.....$169.95

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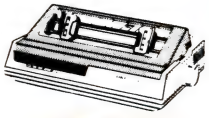


AUSTRALIAS CHEAPEST PRINTER MICROLINE 172

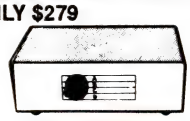
- Compact, reliable, economical

This OKI dot matrix printer is a great investment for the office or home . The Microline 172 fits anywhere you need it, and OKI exclusive bottom feed helps improve your workflow.

- 180 CPS Printer
- NLQ30 CPS

YOU WON'T FIND IT CHEAPER!

ONLY $279



DATA TRANSFER SWITCHES

2 WAY RS232 X19120 ..... ONLY $39

4 WAY RS232 X19125 ..... ONLY $59

2 WAY Centronics X19130 ..... ONLY $49

4 WAY Centronics X19135 ..... ONLY $59

R-NET/ S INTERFACE NETWORK CARD

- Fully compatible with SMC, Novell Arenet card
- Star-burst topology through RG-62 A/U coaxial cable
- Zero wait at 20MHz or higher 80386 machine
- 2.5 Mbps transmission rate

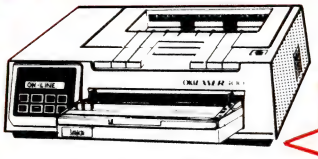
X18162.....$195

E-NET INTERFACE NETWORK CARD

- Fully compatible withNovell NE-1000 Ethernet card
- Built-in 15 pin D type connector
- 10 Mbps transmission rate
- Meets the IEEE 802.3 standard

X18160..... $295

$$$ SUPER SAVINGS $$$ SUPER SAVINGS $$$



OKI LASER PRINTER

ONLY $1995 (inc tax)

Introducing the new generation in page printers, the OKILASER 400.

The affordable LED page printer designed for the small business.

Reliable and compact, the OKILASER 400 fits neatly into the smallest of offices.

Highly reliable due to the latest LED imaging technology, the OKILASER 400 offers excellent print quality, superior paper-handling, and a variety of fonts which rival some of the more expensive laser printers on the market.

SPECIFICATIONS OL400

Printing speed : 4 pages/minute Resolution : 300 x 300 DPI

Emulation : HP Laser Jet Series II

Data Buffer : 512K Byte (standard)
1M Byte expansion (option)
2M Byte expansion (option)
Max. 2.5M Byte

Interface Centronics Parallel or RS232C Serial

Resident Fonts : 25 kinds

Standard Paper input : 200 sheets

Standard Paper output : 200 sheets face up
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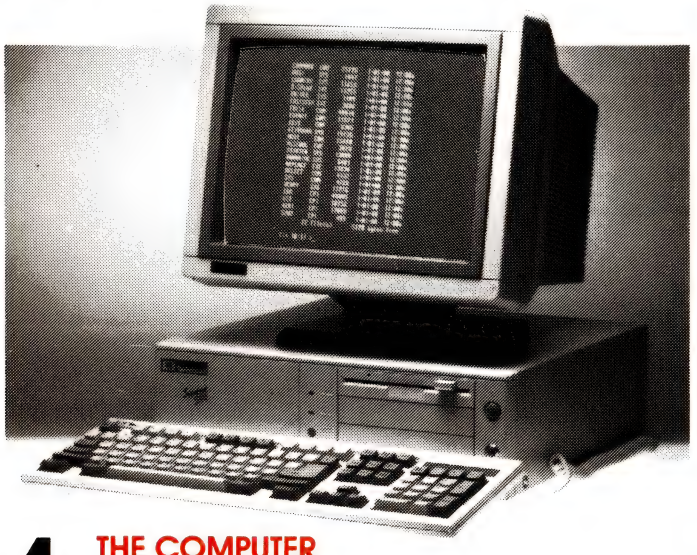

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PRESENTING THE TOOLS

Ron Lubensky views the latest incarnations of the two best-known graphics presentation packages . . .

WHEN I BEGAN thinking about reviewing desktop presentation software for the IBM and compatible arena, my first thought was that there are a lot of packages out there. Most of them can simulate a slide show on a video screen. These images can also be displayed through an overhead video projector, providing visuals for a speech-maker or educator or turned into 35mm slides.

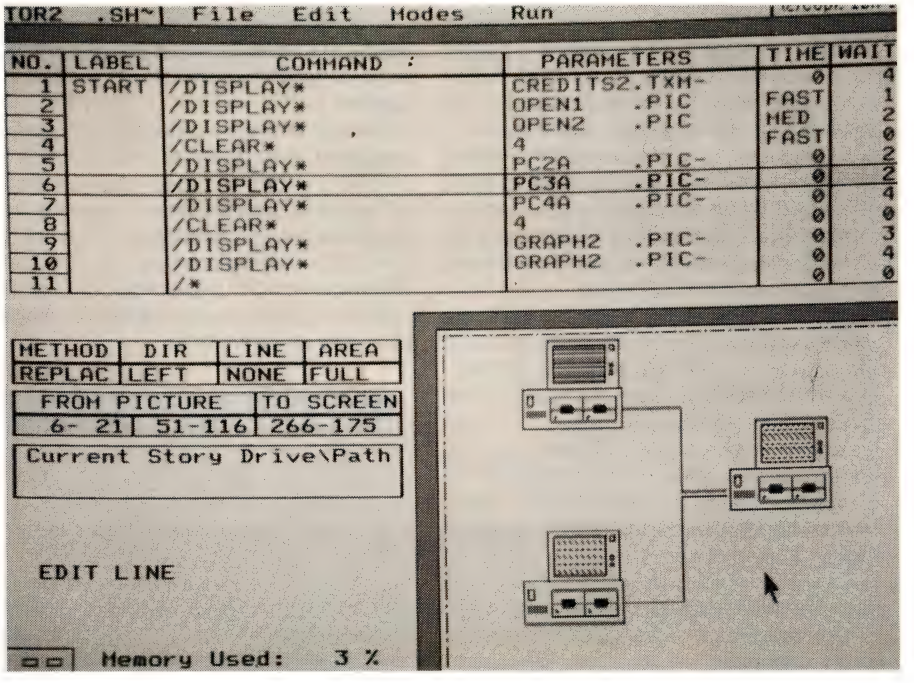
Other software can be used to generate interactive, informative and promotional screen displays accessible by you and I in public places. Then there are computer-based training (CBT) packages which uses presentation techniques to interactively advance skills and knowledge. Many of the application-specific development packages are quite expensive, but very comprehensive, although to newcomers most feel as if a degree in Computing Science is a prerequisite to learning them.

I decided to concentrate on two packages which have been used in a variety of different Desktop Presentation application areas. They are Storyboard Plus from IBM and Show Partner F/X from Brightbill-Roberts. In comparison to many other packages, they are relatively easy to use and easily available. Both are capable of displaying a series of bit-mapped images on-screen using a variety of transition methods, called dissolves.

The presentation can be displayed in a range of colors in graphic modes, including CGA, EGA, MCGA and VGA. The 256-color low-resolution MCGA mode is a good vehicle for presenting animated graphics, while the higher-resolution modes provide the crispness needed for displaying text.

You are provided with the means to construct a 'script' which completely describes how the presentation should run. On the screen this script looks like a spreadsheet, with columns for the names of image files to display, the dissolve methods to use, and length of time to display the images. There are other operations that can be scripted besides image display. For example, there are commands to read keyboard input and invoke conditional branching so that you can develop a complete self-propelled or interactive presentation.

Since these packages are graphics-intensive, you would be well-advised to use an 80286 or '386 PC with a clock speed of at least 12MHz to run your finished presentations or the images might dissolve too slowly to be effective. Both StoryBoard Plus and Show Partner F/X come with run-time modules which are freely distributable. You can make multiple copies of your finished presentations and pass them around.



Storyboard Plus' Story Editor uses a clearly-presented spreadsheet to formulate scripts. The state of the presentation screen at the row currently being edited is displayed quarter-sized in the lower-right window.

Storyboard Plus

IBM FIRST published Storyboard in 1985, and early this year Version 2.00 was finally released in Australia. The 1.8Mb of program and sample data can be loaded into a subdirectory on your fixed disk using the Install or just a copy utility. The package is made up of five modules which can be accessed either from a main menu program called SBMENU.EXE, or directly from Dos.

The Picture Maker module will be the starting point for the creation of your presentations. The tools available are typical of bit-mapped paint packages: you can draw lines, boxes and ellipses with different line styles; you can fill areas with different colors and patterns, or use an air brush tool for more artistic effects. Its text display features are straightforward, but not extensive. There are nine fonts which can be presented in a number of styles, including bold, italic, outlined or with drop shadows; these can be sized and kerned to suit your needs. There is also a facility to create custom fonts.

Picture Maker provides two drawing pages in all its graphics modes. This allows you to easily cut and paste between images. It is also useful as an alternative to 'masking' out the drawing surface. Simply cut out a section of your screen to the second page, do your alterations to it without worrying about going outside the cut section, then paste it back into the original page.

If presenting simple bar graphs, line graphs or pie charts is on your agenda, then Storyboard can produce these automatically. You only need to enter the graph values from the keyboard and set a few parameters. After the graph has been generated, you can annotate it with text, or alter the default colors.

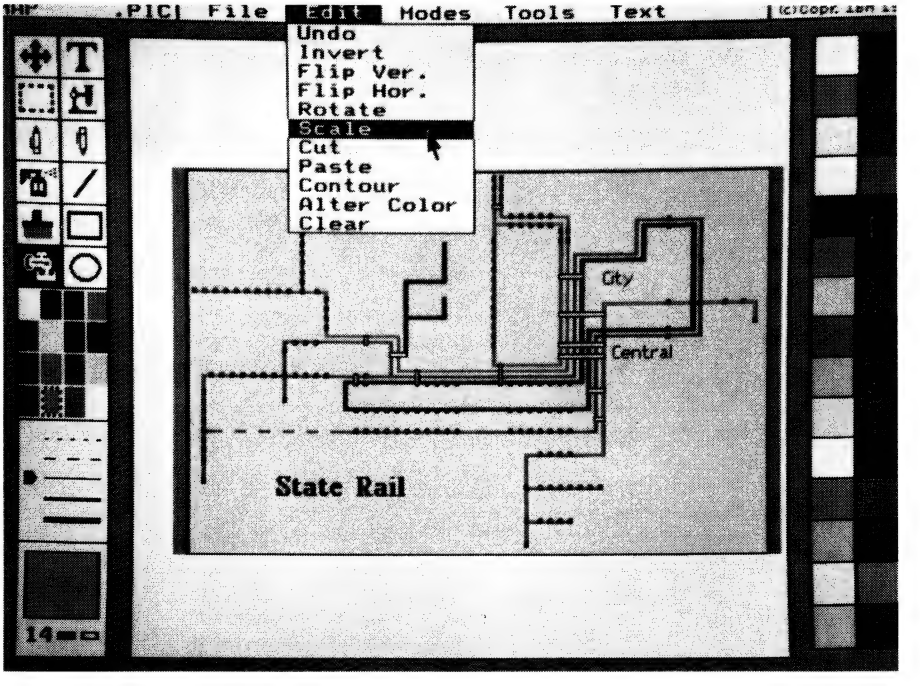
Images are saved in Storyboard's own PIC format, which applies a form of run-length encoding to compress the file size. You can save full-screen images, or small cut-pictures. There are several ways to import images from other sources.

First of all, Storyboard can read image files in .PCX (PC Paintbrush) format directly, although the 256-color modes are only converted as a grey scale. Storyboard can also read uncompressed TIFF files. A second method is to use the Picture Taker module. Once memory-resident and activated, it will capture in Storyboard format any screen displayed during the execution of another program with the touch of a user-defined 'hot key'.

The last method is to use a digitising board. These can produce a digital representation of a single video frame from a VCR or camera, and store it in a memory buffer on the boards themselves. Storyboard has drivers to direct the actions of these boards, and then convert the buffered image to PIC format.

The Text Maker (TM) module is used to construct text-only screens, or edit text screens captured from other programs with Picture Taker. For example, you could incorporate a spreadsheet display into the presentation. Presentation scripting is done using the Story Editor module, which is well-designed and fairly easy to use. This script spreadsheet can be saved as a script file, to be used by the Story Teller module to redisplay your presentation.

Most of the rows will have Display or Show commands, indicating which image to put on the screen and where to put it, using whatever dissolve method is chosen. Storyboard does not include any facility to set a viewport into the presentation screen; thus, there is no explicit windowing capability. However, you can limit how much of an image to display, and make sure you display it such that it looks like a window.



Full or partial screen images may be created and modified using Storyboard Plus' Picture Maker, which provides several useful tools for bit-mapped graphic designs.

If you want to do anything remotely creative, you will find yourself dealing more with the display of cut-pictures than full-screen images. For example, to display four small graphs in succession, it would be best to store them all in a single image file, then use Display commands to present them in the same location on the presentation screen. This technique also speeds the presentation up by reducing the number of disk accesses.

When you save an image from Picture Maker, you can specify which color should be treated as 'transparent'. The underlying image will remain visible through these transparent portions of a new image. In placing cut-pictures onto the presentation screen, you are limited to choosing columns in 4- or 8-pixel increments, depending on the current graphics mode. This is a nuisance when you want to dissolve a succession of cut-pictures into the same box-space, because these cut-pictures must all be saved in the same pixel alignment.

Animation is possible using a rapid succession of small images. There is also a Sprite command which lets you display 'canned' action figures quite quickly. But there is no module to generate your own sprite animations, and the figures provided are quite abysmal. Story Editor also has built-in commands to produce voice and sound effects. However, this requires extra IBM hardware which is not available here in Australia, rendering these features useless.

Story Editor provides links to other Dos programs, and one Storyboard script can invoke another one, allowing you to develop your presentations in a building-block fashion. Storyboard supports the IBM 8514/A Display Adaptor, which can display 640 *x* 480 pixels with 256 colors – this is a good graphics mode to display digitised photographs.

Product Details

Product: Storyboard Plus 2.0
Distributor: IBM Australia
PO Box 400, Pennant Hills 2121 NSW
(02) 634 9111
Price: $760

Story Editor provides links to other Dos programs, and one Storyboard script can invoke another one, allowing you to develop your presentations in a building-block fashion.

Keep in mind that the 8514/A can only be used in a computer with Micro Channel Architecture (MCA), which may increase the cost of your presentation hardware. Several graphics card manufacturers have released '8514/A-compatible' cards for use in micros with an AT-style bus. However, not all of these cards follow the 8514/A's rather scattered memory assignment scheme. You may find that Storyboard will not run properly on some of these cards.

Each module is presented with a short tutorial, and then an explanation of the features provided. Examples of screen displays are well-presented, and the layout is crisp.

Show Partner F/X

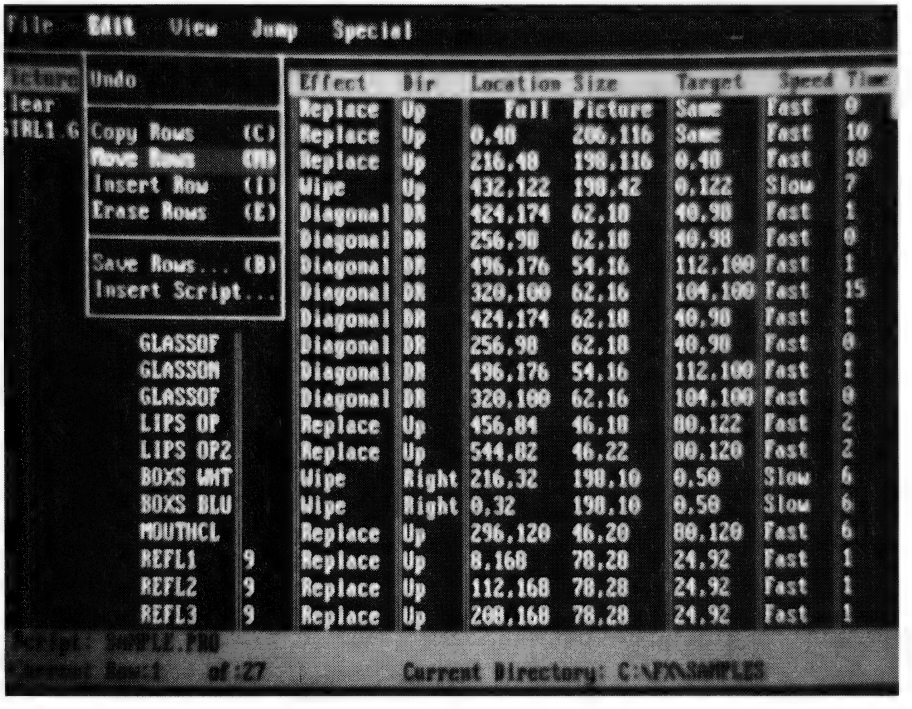
SHOW PARTNER F/X, now at Version 3.5, is similar in many ways to Storyboard. It is also a collection of modules, accessible either directly from Dos, or through a menu program FX.EXE. All up, it takes 1.5Mb of fixed disk space to hold all the programs and sample data, which should be loaded using the FXSETUP.EXE program.

The bit-mapped screen-painting program that comes with Show Partner is quite limited, and really is only meant for touching up imported images. (It isn't called GraFIX for nothing!) Show Partner can display all VGA video modes, and it has its own compressed GX2 file format for storing graphic images. TexPaint is a nice text-mode screen generation module which allows you to create very colorful and readable text displays with a minimum of fuss.

Two screen-capture programs are included with Show Partner. DosCAP is a Dos memory-resident program, much like Storyboard's Picture Taker. One nice feature is its ability to convert text mode screens into graphics mode, so you can use graphic dissolve methods to display them in the presentation. WINCAP is capable of capturing screens created under Microsoft Windows, including screens created by advanced object-oriented drawing packages.

Show Partner does not control digitisers. You will have to use other software to capture and display video images from such boards, and then use one of the screen-capture programs to convert them to Show Partner format.

The scripting module is called Script Editor. It operates in a spreadsheet format similar to the Storyboard Story Editor, but it provides you with several additional Desktop Presentation features. To start with, Show Partner has a few built-in sound effects which use the PC's own speaker. You can also install the Shareware program Pianoman and include music with your visual presentation.



The Script Editor module in Show Partner F/X packs a lot of data onto a spreadsheet screen, but you get a good idea what's happening on the presentation screen.

If you have had any programming experience, then you will feel very comfortable with the commands which manipulate numeric variables. You can count loops, add scores and do all the chores that variables are meant for. And, then you can use commands which test the values of variables to alter the script flow conditionally. Another interesting effect allows you to display a scrolling text 'window'. By hurrying this effect up, you end up with a brilliant speed-reading drill!

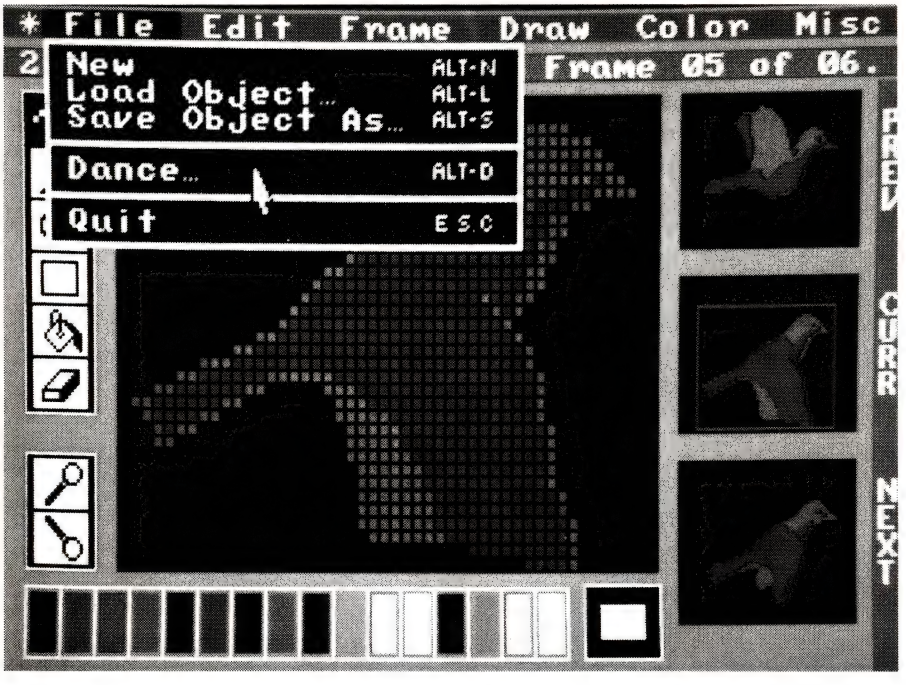
Script Editor allows you to nominate cut-pictures for display. But it lacks a 'transparent' mode of laying images onto the screen. So each image is displayed exactly as it was stored, background and all. And, as with Storyboard, there is no windowing capability here either. Show Partner shares with Storyboard the annoying requirement to align cut-picture borders byte-wise.

One area where Show Partner excels is in the area of animation – the Animated Object Editor provides the tools to create sequences of animated figures. To ensure speedy execution, you are limited to figures of no more than 64 x 48 pixels. In high-resolution VGA modes, this hardly amounts to any more than icon-size. Only animated objects can be placed on the screen 'transparently'.

A corresponding set of animation effects in the Script Editor directs these productions on-screen, even in parallel with other screen effects. In fact, you can have up to nine animations happening simultaneously. Of course, the more animations you script, the slower each animation behaves.

The documentation accompanying Show Partner F/X is fine for a first read-through, but as a reference guide it is hopeless. Instead of updating the User's Guide from Version 3.2, Brightbill-Roberts merely published an Addendum for Version 3.5, which tells you to ignore certain sections of the other manual! And, since the indexes to both are ordered by program module instead of strictly alphabetically, finding items is a real pain.

Show Partner comes with a tutorial script, which illustrates some of the presentation effects and features available. The user interface varies somewhat between the various Show Partner modules, and so I'm not enthralled with the overall look and feel of the product.



Using Show Partner to animate a bird in flight. Each frame is designed pixel-by-pixel with reference to the preceding and succeeding frames. The sequence is then played back on-the-spot (danced) to see how it looks.

Storyboard Plus has a consistently nice feel. Choose it if your needs are simple, or you need 8514/A display quality. But I feel that Show Partner offers more features and control for assembling Desktop Presentations. □

Product Details

Product: Show Partner F/X 3.5
Distributor: Technical Imports Australia
Ph: (02) 922 6833
Fax: (02) 925 0311
Review copy: Software Express
74 Parramatta Rd,
Stanmore 2048 NSW
Ph: (02) 519 3249
Fax: (02) 519 3868
Price: $585

One area where Show Partner excels is in the area of animation – the Animated Object Editor provides the tools to create sequences of animated figures. To ensure speedy execution, you are limited to figures of no more than 64 *x* 48 pixels.

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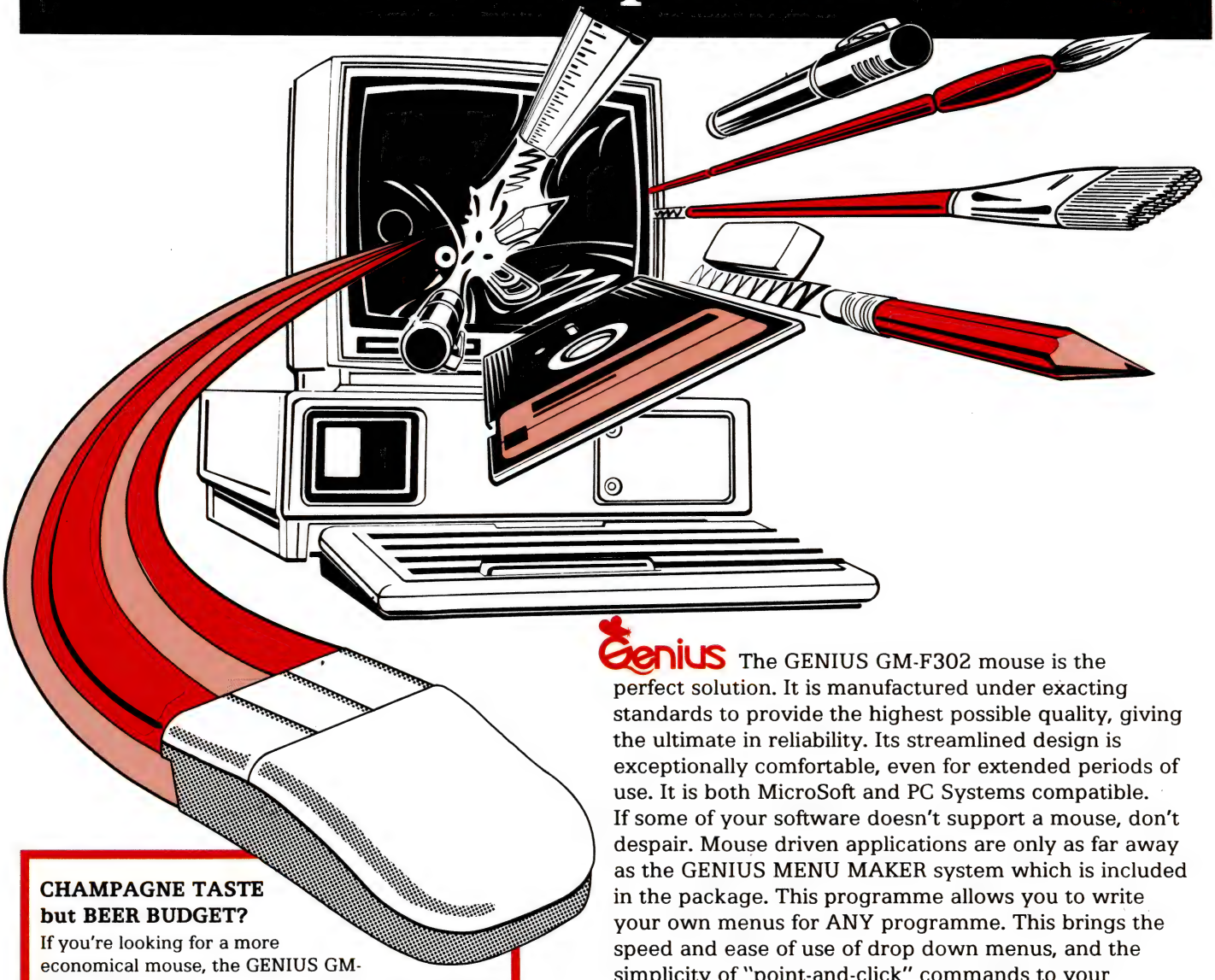

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DESKTOP VIDEO DESIGN

Brett Sullivan describes how to apply concepts of art and design when exploring the creative potential of the computer as an art medium to produce videos of aesthetic value. Combining ideas and design strategies is undertaken during the process of preparing a storyboard.

COMPUTER GRAPHICS has emerged as a significant field of communication and expression over the past 30 years. For most of that time the development of computer graphics has been in the hands of those who designed and operated computers. Technicians, computer programmers and scientists had little interest or expertise in art and design, yet their research has been essential in helping to define the technical capabilities of the computer as a graphics tool. The images produced by these experts were captivating in their simulation of spatial relationships, image processing, lighting and texture experiments, and complex object and camera movements. However, their concerns centered on the quest for technical innovation and mastery rather than issues of aesthetics and design. This gave rise to an overuse of computer generated images such as vector grids, flying chrome logos and checkerboard floors with transparent and mirrored spheres. Such images are now considered cliches marking a new maturity in computer graphics.

For many years, artists and designers have been wary of the capabilities of computers to be used as tools to translate ideas into visual images. Initially, the work created by artists using computer technology was largely misinterpreted. Common arguments concerning art and technology were raised by those unaware of the flexibility and creative potential of the computer as an art medium. It must be remembered that without an operator the computer is useless. As a computer user, the artist utilises the computer's tools as multimedia to create images, motion and sounds. The computer is to a computer artist what paint is to a painter.

It has only been in recent years that artists and designers have had more opportunity to explore the creative possi-

bilities of computer graphics and provide an imaginative input. Friendlier user interfaces in particular have provided more varied and comfortable art-making systems. A computer artist can subsequently develop a style by manipulating images and creating new views of imagery never seen before. This is similar to the way photographers, film directors, musicians and painters display an identifiable style in the work they produce.

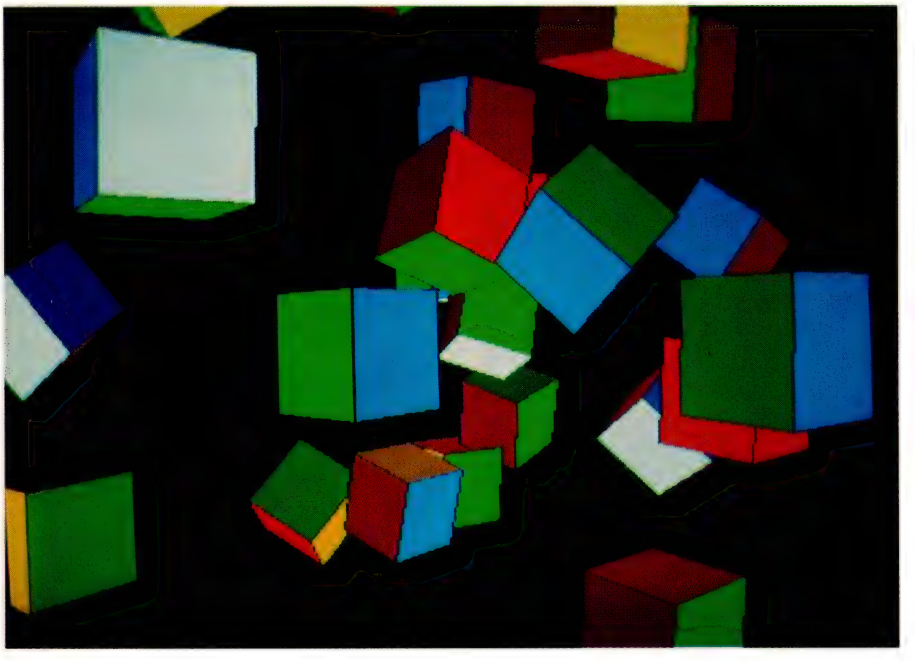
As an art form, computer graphics presents a strong challenge to traditional methods of making pictures. Art forms go through inherent changes in the process of defining and establishing themselves. Through its development, synthetic imagery created by the computer has been used to re-invent styles of twentieth century art such as surrealism and hard edge abstraction while at the same time constructing imagery only possible on a computer. For example, the computer may use several approaches to depict the traditional theme of a landscape. The texture of a landscape may be simulated in convincing reality by combining the graphics capabilities of the computer, the mathematical precision of fractal geometry and an aesthetic awareness of environmental forms. The purpose of computer graphics is not to emulate the results of other media. Computer graphics explores forms in ways other media cannot.

The aesthetics of a new medium have to be initially understood in terms of established forms of artistic expression before the medium can be utilised freely by the artist and appreciated properly by the viewer. There is a need to be aware of the domain of art and aesthetics before it can be presumed to comment with confidence on the aesthetics of computer generated images. For example, photography was initially seen as a rival to painting before a distinct position within the spectrum of visual arts was established. Similarly, computer graphics will be related to photography, film and painting before a unique aesthetic ground is defined. The real aesthetic potential of computer graphics appears to be its ability to be integrated with other media. One of the most successful uses is in the area of Desktop Video where computer graphics is used in collaboration with video, film and sound.

Art and design

DESKTOP VIDEO production encompasses images, motion and sound. Within each of these areas are features which should be considered carefully in order to make a project aesthetically pleasing.

Images: Computer images can be ana-



Imbalance and contrast in size has been used to vary the centre of interest.

lysed in a similar way to paintings or drawings. Looking carefully at the way each component in an image contributes to the overall meaning will help develop a critical awareness of aesthetic concerns. Shape, line, colour, texture, space and light are the elements that comprise visual forms and are relevant to both 2D and 3D computer imagery. These elements are arranged to form a composition by utilising different design principles.

An equal distribution of visual weight is one of the aims of most compositions. This is achieved by considering the balance of visual elements. The most formal of these arrangements is symmetrical balance which repeats shapes in the same position about an axis. Symmetrical balance is often used when designing logos, motifs or simple patterns. A more obvious example can be found in television commercials that depict items side by side in an effort to distinguish differences between products.

Radial balance is another technique used to establish balance and refers to shapes which radiate from a central point. This has been used extensively in computer animations where the viewer travels through tunnels or moves through static or moving objects. A good example of radial balance is the opening sequence of the Dr Who television series where the viewer travels through a spiralling cosmic atmosphere.

The most common type of balance found in compositions is asymmetrical balance. Asymmetrical balance is used when unlike shapes require equal eye attention. This appears less contrived and less planned than symmetrical balance but it is more difficult to construct as subtle elements are needed to balance dissimilar shapes. Sometimes it might be necessary to use imbalance in a picture. This is a particularly useful tool for shock value or when aiming to evoke emotional responses from an audience.

Associated with balance is the harmony or unity of a composition. A composition may possess visual unity, a unified idea, or both. Visual unity means the images denote some harmony that is apparent to the eye. A unified idea means the content is cohesive and readable. However, a unified idea may not necessarily produce a unified visual image. For example, the idea of a composition may be related to a sporting theme in which case the images may depict varying sporting activities but not share common actions. The visual content may appear unrelated but the composition would be unified by the idea.

When deciding whether a composition is unified, it is best to interpret the entire image before analysing individual elements. Sometimes squinting one's eyes can help give a general impression of the unity or disunity of an image. Using line to achieve unity is a common device. A line, edge or angle can be used as a directional device to carry the viewer's eye from one form to another. This is used extensively in advertising where the lines direct the viewer to scan the entire image making sure all the information about the product is taken in.

A checkerboard pattern is a simple example of unity with its formal repetition and consistent arrangement of shapes, however, it is quite a dull image as it lacks variety. In the same way music incorporates variations of a theme, so too can there be variations in unity.

Repetition is a device often used to achieve visual unity. The elements may be repeated throughout a composition to relate and connect components. Repetition can result in dynamic images that generate a sense of movement. In computer paint programs, repeating certain features of an image can be done by cutting out the required area as a brush and pasting it throughout the image.

A device that can help stimulate an image is a point of emphasis, or a focal point. A focal point attracts attention and encourages the viewer to look further into a composition. A focal point generally differs from other visual features in a composition. It may be subtle or obvious in the way it interrupts the overall feeling or pattern of an image which will automatically attract the eye to that very difference. A focal point may be particularly large in relation to other components in the composition, however, in terms of unity it must still retain a link with the overall design or it will appear misplaced or alienated.

Emphasis can be achieved through the size of the shape being highlighted, directional lines, perspective devices, or the gaze of characters or actors. Emphasis can also be achieved by isolating the position of a focal point in a composition but not its relationship to the overall unity. Isolating a focal point in the centre of a picture can look contrived, but if it is too close to the edge of the screen it will have the tendency to pull the viewer's eye off the screen. Isolation can be combined with imbalance to produce some striking contrasts.

To create the most effective means of communication it is important to keep in mind design principles when composing images. Emphasising certain areas in a composition is similar to mixing instruments in a multitrack sound record-

Generating ideas

ONE OF THE most difficult things about designing a desktop video is getting a start. There must be an initial problem to be solved, a need to communicate information, or a desire to express ideas or feelings before a project can begin.

Thinking strategies: There are several approaches to generating ideas. These involve a variety of thinking strategies and include problem solving, synectics, brainstorming and modelling. Particular thinking strategies can be applied to specific tasks but in most situations the process of generating ideas uses a combination of methods. The initial step usually involves an element of brainstorming in order to compile a range of imaginative ideas and this leads to the other thinking processes.

Thinking strategies are devices for overcoming problems. However, once a problem has been solved this can often imply that the idea can be taken further. In some cases, experimenting with alternative applications of an idea can result in new and innovative solutions.

Simple ideas are the easiest to manage and quite often the most effective. A simple idea does not mean a project is plain or basic. Taking a simple idea and expanding on it is an easier task than trying to provide an interpretation of more complex content. A particular object, such as an apple, could be the focus of a video. This simple topic could be expanded upon in many ways. For example, how many different views of an apple could be explored using video footage and computer graphics? Could the apple be an individual character and provide comment on the surrounding environment? Perhaps the apple could be animated to interact with the 'real world'. Alternatively, the apple could be given symbolic qualities such as 'temptation', or 'rotten to the core'. Taking a simple idea and exploring it encourages imaginative responses. On the other hand, one could begin with a broad theme which would involve considering an overall model and then focusing on the selection and rejection of ideas.

This article was taken from Brett Sullivan's Desktop Video, *produced by* Your Computer. *Sullivan is an award-winning computer video producer and lecturer on the subject. Copies of the full-color publication are available from selected newsagents for A$9.95, or by sending A$9.95 plus A$1.50 for p&p to* Desktop Video, *The Marketing Department, The Federal Publishing Co, PO Box 227, Waterloo 2015 NSW.*

Aims: A desktop video project should have an aim. Once the purpose has been defined, appropriate thinking strategies can be used to help plan ways to achieve the aim. The purpose of a video may be to inform, instruct, motivate or persuade, or even to entertain.

Inform: This involves presenting information. The audience plays a passive and receptive role. This task emphasises modelling and problem solving processes as information is presented in a logical and ordered way.

Instruct: This extends information presentations by involving the audience in a learning process. The emphasis is on using problem solving strategies to acquire knowledge and skills.

Motivate or Persuade: This aim is designed to affect a change in an audience's attitudes, values or emotions. Brainstorming and problem solving strategies are used in the design of motivational videos. Synectic relationships can also be used to create striking comparisons and thus helping to influence an audience.

Entertain: This involves an audience in an imaginative experience. Elements of all thinking strategies can be used, particularly brainstorming and synectics. Entertainment can also be incorporated into informative, instructional or motivational videos. Short entertaining sequences can relieve the bombardment of information and help sustain an audience's interest. In motivational videos, entertaining sequences can be used in a more dramatic fashion to deepen the impact on an audience.

When generating ideas it is advisable to refresh thinking approaches with a constant reminder of the aim of the video and the intended audience. When considering an audience, factors such as age, interests, educational level and the cultural context may help determine the complexity of the ideas being presented, the audience interaction, or rate at which the narrative is developed. The aims of a video and audience needs should never be separated.

ing. If too many things are being emphasised or 'turned up' then there will be no distinguishable characteristics and the purpose of the image may be lost.

Motion: Design principles should also be applied to animation and video footage. The relationship between characters and objects in a frame, their placement, and visual quality can be examined in a similar way to still images. An analytical process can also be used when designing sequences of computer animated objects or actors in video footage. Motion can be analysed by examining its design and structure. Do the characters movements direct the audience's attention to other parts of the setting? Is the motion chaotic or ordered? Are movements concentrated on one side of the frame or do they occupy the entire area? What is the camera's viewpoint of the movements? Responses to such questions will help produce an effective relationship between the idea and the visual content.

Sequences and transitions

SEQUENCES ARE a collection of images or motions which share a common subject or are part of a particular activity. They are combined to form scenes which then comprise the video. Transitions are the links between sequences and may be a straight cut, a dissolve, a fade or some other visual effect.

Unified sequences can communicate information in a specific manner. For example, a montage sequence may contain

a bombardment of diverse images but the idea or purpose can still be unified regardless of how varying the images may appear. On a larger scale, sequences and scenes may depict several viewpoints of a particular issue but have completely different settings and characters involved in each section. They may appear visually unrelated but the messages being conveyed can still be coherent. On the other hand, a video may comprise sequences of images and motions that possess a similar composition, yet the unity of the idea may not be focused.

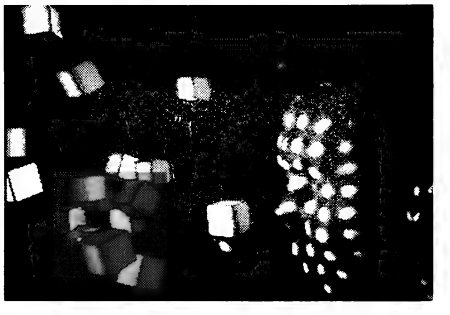
Repetitive sequences are seldom used in video footage. However, experimental video artists have used repetition in scratch videos, and more recently television shows have incorporated the technique for comical effect. These short repetitive sequences usually take famous sequences from films or videos, or footage of prominent public figures, and repeat them in forward or reverse motion. Repetition, however, is more widely used in both traditional and computer animation. A typical example can be found in most cartoons where characters travel through a setting. The background is animated across the screen repeatedly to produce the illusion of the characters moving through the scenery.

Repetition of a certain transition can be used effectively as a signifier. A certain style of transition may become associated with the beginning or ending of sequences and scenes. Repetition of a dynamic visual effect must be used more carefully. Each time the transition is repeated the impact of the visual effect is lessened.

Sound

A SOUNDTRACK for any Desktop Video production must be given careful consideration. It should be remembered that sound and image are interactive and feed off each other for information, description and expressive content. A soundtrack selects, isolates and builds up narrative form through the arrangement of edited sounds and images in a manner similar to the visual content. For example, a musical score may travel through several stages before reaching a climax; dialog will follow developments in a script; and sound effects can help define the spatial characteristics of the visual framework.

A soundtrack can be divided into three areas: music, dialog and sound effects. A soundtrack is comprised of similar design elements and principles as visual images. The analysis of a soundtrack involves examining the relationship between images and sound. Most soundtracks are arranged to complement the visuals with the purpose of unifying the images and sounds to produce a clear message. For example, if the visuals contain still images or slow motion, then ambient music may be the most appropriate soundtrack. Conversely, images may be designed to suit a soundtrack, which is the case with most rock videos.



The production pages for this scene 'Mind Moves' read: Character moves head around to observe flying cubes. Cubes enter at top left and travel in random directions at the top of the screen.

The lyrics or rhythm of a song may determine the content of the visual composition and the manner in which it is presented.

Another way of designing a soundtrack is to create contrast, or imbalance. The soundtrack that the audience may expect to associate with the image may be completely different. For example, in the film *Good Morning Vietnam* scenes of bloodshed and fighting are accompanied by the ballad *What a Wonderful World* performed by Louis Armstrong. The impact of such an ironic combination is telling and helps emphasise particular topics. The same principle can be applied to dialog and sound effects. For example, if a character is about to scream then the screaming sound can be replaced with a siren, crashing sound or gunshot. These are design techniques which make use of the concept of variation in unity. The audience's perception of a unified image and sound is played upon and altered.

The balance between music, dialog and sound effects in a soundtrack is important when deciding what should be emphasised. When producing a soundtrack, it is the sound mixer who controls what the audience will hear. The balance, or mix, between the sounds is used to focus attention on certain images and themes.

The storyboard

THE STORYBOARD is a vital element in pre-production. The importance of planning and storyboarding a project should never be underestimated. Careful storyboarding takes a substantial amount of time but provides an essential framework crucial to successful production. Making a video with no plans, intentions, or steps to work by generally results in an array of mixed and unrelated messages with no clear direction or purpose.

A storyboard is a sequential plan which describes the arrangement of the images and sounds in a Desktop Video project. The storyboard is developed in five stages: generating ideas, classifying content groups, describing scenes, developing sequences and preparing production pages.

Ideas: The initial stage in developing a storyboard is to generate ideas. Some projects may have particular goals or problems to be solved. For example, design briefs for television commercials generally focus on the specific task of promoting a product. Other projects, such as a rock video, may be open ended and require a more imaginative response. Irrespective of the intention, the initial planning involves using a variety of thinking strategies in order to come up with possible ideas.

Developing content for a storyboard involves sketching or writing down any ideas or observations that could be used in the project. It is best to record everything no matter how irrelevant it may initially seem. Flashes of inspiration are rare moments so it is important to note any ideas as soon as they come. The first stage of planning results in a collection of ideas which provide the basic content for a video production.

Content Groups: The second stage in story development is to place the sketches, comments and plot ideas into groups. Ideas may be placed in two or three categories for simple content, but more groups are needed for videos covering a range of issues. Content groups provide a video with a framework on which other ideas are built. Arranging the groups into a logical order of meaning also helps develop strategies for delivering the content. The arrangement will be simple at this stage but should

allow for a synopsis to be written which outlines the purpose and content of the video, its structure and the target audience.

Scenes: With the underlying structure of a video in place, the content groups are broken into more specific arrangements called scenes. Scenes generally concentrate on one topic or an aspect of that topic. They comprise a collection of images that are presented in a uniform style, associated with the same idea, or share a common environment.

Each scene should be assigned a specific task. The purpose of a scene may be to present information, build suspense, show action, evoke emotion or generate comedy. Scenes should not wander aimlessly or be too complex because this breaks the flow of the narration and makes it difficult for the audience to comprehend the total presentation.

It is during this part of pre-production where important elements of production are considered in detail. For example, when planning video footage the location, sets and props must all be considered. Similarly, the settings for computer graphics should be designed. For computer graphics the environment may be 2D images, a simulated 3D world, or real images filmed on video over which computer graphics are superimposed.

Computer graphics explores forms in ways other media cannot.

If there is to be dialog, a script should be completed during this stage. A script does not have to be based on spoken language, but can be a lyrical or musical arrangement. Accompanying the script are descriptions of the appearances and personalities of the characters and actors involved. Characters in computer graphics need not be human-like or cartoon figures, but may be designed as abstract shapes possessing personal qualities and playing individual roles.

At this stage, the draft of the storyboard should comprise descriptions of the main topics raised within each scene, the visual surroundings, the characters involved and a script if required.

Sequences: Scenes are further divided into sequences. The development and arrangement of sequences is time consuming as the storyboard information needs to be quite specific. It is at this fourth stage of development where strategies for conveying the content are carefully analysed. For example, if the intention is to have a character move from left to right then decisions need to be made about how the sequence is to be structured. This may mean deciding between continuous motion or a sequence of motions broken up with different camera angles or focus points to show varying viewpoints.

A layout of a design for an advertisment. Directional lines and angles are used to unify the image and emphasise the product.

Sequences have to be carefully arranged to produce a narrative the audience will comprehend. Some of the problems associated with arranging sequences in a scene may be as follows: Do the sequences flow or do they appear dislocated? Do they complement the narrative structure or do they sidetrack the issue? Does one sequence have particular importance and if so, do the sequences leading to it build suspense and direct attention? How can a 2D animated sequence move into a 3D sequence?

The style of a sequence can contribute to a scene in a certain manner. Some may introduce characters, show actions or depict environments. Others may be expressive and use visual effects to create moods or feelings. It is best to use a variety of styles as the overuse of one approach will result in boring and predictable imagery. For example, several descriptive sequences presented one after the other generates the same degree of interest as seeing too many photographs of a friend's holiday. Similarly, a chain of fast paced action sequences may leave the audience drained and unable to follow the flow of the plot. Unrelated sequences, on the other hand, may be an effective contrast but they need to be tied together later or the purpose may be misunderstood. It is also tempting to include a variety of visual effects, yet this can become impersonal and alienate the audience if overused. Experience and careful planning will help determine what styles will be most effective when designing sequences.

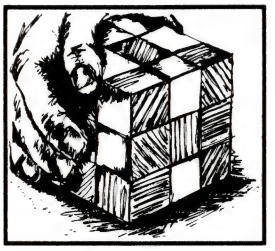
Accompanying this information should be details on the transitions between sequences. Although most transitions are done during the editing stage, it is best to have a clear outline before production. For example, a certain sequence

PRODUCTION PAGE: ***Mind Moves***

Scene Number: 6 Sequence Number: 1
Disk: Scene 6 File: Mouth

Tape Number	Video: 3	Computer: 2	Mix: 5
Count Numbers	Video: 2810	Computer: 560	Mix: 785
Take Number	Video: 1	Computer: 2	Mix: 2
Take Time	Video: 10 sec	Computer: 3 sec	Mix: 9 sec
Exact Time	Video: 4 sec	Computer: 3 sec	Mix: 4 sec

Video Description:
Character opens mouth and has a look of astonishment across his face.
Graphics Description:
3D animation. Superimposed over video footage. Cube pieces come from infinity at the bottom centre of the screen and then move in different directions as they get closer to the camera.
Beginning: Quick fade from black. End: Cut
Video Camera:
MS to BCU. Zoom lasts 1 sec. Character is framed so that the nose is positioned in the middle of the screen for BCU.
Computer Camera:
Camera is stationary.
Lighting:
Character's face is illuminated on one side. The other side of the face and the background are in shadow. Two lights are placed to the left of the character. Lights in the 3D animations for this entire scene are placed to give even brightness on all sides.. of the cube.
Music: Upbeat music in full flight.
Dialogue: -- Sound Effects:
Swoosh, sweep sound during camera zoom.



The final storyboard used in video production is comprised of a series of production pages, such as this example used in the production of the author's multi-media video 'Mind Moves'. Production pages outline essential details for the sequences and any other specific shots that are particularly important. With this solid base the final editing process will be much easier and less time consuming.

may require a computer animation to finish with a black screen enabling video footage to be faded from black, making for a smooth transition. In this case, the animation is specifically designed to suit the transition, a task that must be completed during production.

The soundtrack also needs to be organised in more detail during this stage of planning. Music, dialog and sound effects should be directly linked with particular sequences.

At this stage the storyboard should include sketches which describe the computer animated and video sequences accompanied by information detailing the transitions between the sequences. The soundtrack should be carefully scripted and linked with the corresponding visual sequences.

Production Pages: The final storyboard is comprised of a series of production pages which become invaluable during production. Production pages are the last stage in the storyboarding process and like the previous steps, they get more specific in the information they contain. Production pages outline essential details for the sequences and any other specific shots that are particularly important. With this solid base, the final editing process will be much easier and less time consuming.

At the top of a production page is information concerning the scene and sequence numbers. Beneath this is information which is completed after production. This is a record of where the sequence can be found once it has been finished. If the sequence is computer generated, then the name of the corresponding disk and file should be noted. The count number and the number of the video tape which contains live footage, computer graphics or a mix of the two, should also be written on the production page. Accompanying these notes is the take number of the successful sequence. A take is one of several recordings of the same sequence.

Completing the post production data is information concerning the length of the sequence. The duration of the successful take should be recorded on the production pages. After watching the video tapes several times, certain parts of the sequence may seem unnecessary in which case the exact time of the required portion of the sequence should be noted. The length of a sequence is particularly important when there is a need to superimpose computer graphics over live footage because both sequences must be of equal duration to make the mix effective. Post production notes are extremely important when the time comes to edit and there is a need to know exactly where a sequence can be found.

A neat sketch of the most important shot in the sequence should also be included on the production pages. The sketch should show major characters and objects and any other visuals that are important to that sequence.

The next portion of a production page comprises information that can be completed during pre-production, although specific details are quite often changed during production. Brief descriptions of the video and computer sequences are essential. They should describe the character's actions and the composition of the main components in the sequence. The description of computer sequences should also specify whether the animation is 2D or 3D and if it is superimposed over video images.

A chain of fast paced action sequences may leave the audience drained and unable to follow the flow of the plot.

A further consideration is how the sequence begins and ends. Developing an 'eye' for successful transitions takes time and if the desired transition does not work, then it must be replaced by an alternative solution. Keeping a record of successful and unsuccessful information on a production page is important as it will help with the design of future projects.

Additional information which needs to be included on a production page is a description of the main camera shots that make up the sequence. Camera position is an important factor and applies when using a video camera or designing motion paths for a camera in 3D computer animation. The following camera positions should be considered.

1) Camera Angle refers to the degree the camera is tilted. Low camera angles on characters suggest the character to be

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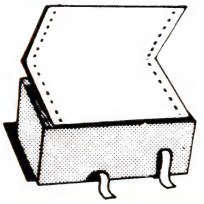

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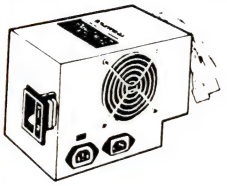

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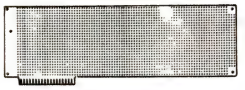

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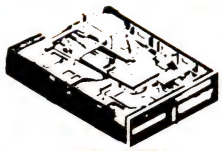

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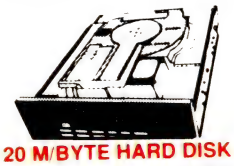

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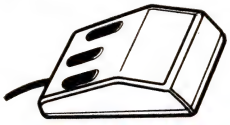

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dominant and powerful. High camera angles make the subject seem vulnerable and submissive.

2) Dollying involves physically moving the camera away or towards the subject in a smooth motion. Professional camera arrangements perform such movements on train-like tracks. However, dollying can be done by using anything with wheels such as filming while being pushed slowly on a skateboard. Dollying is easily simulated in 3D computer animation by creating the appropriate motion path for the camera.

3) Panning involves moving the camera side to side to capture movement or to describe a setting.

4) Tilting involves moving the camera up or down.

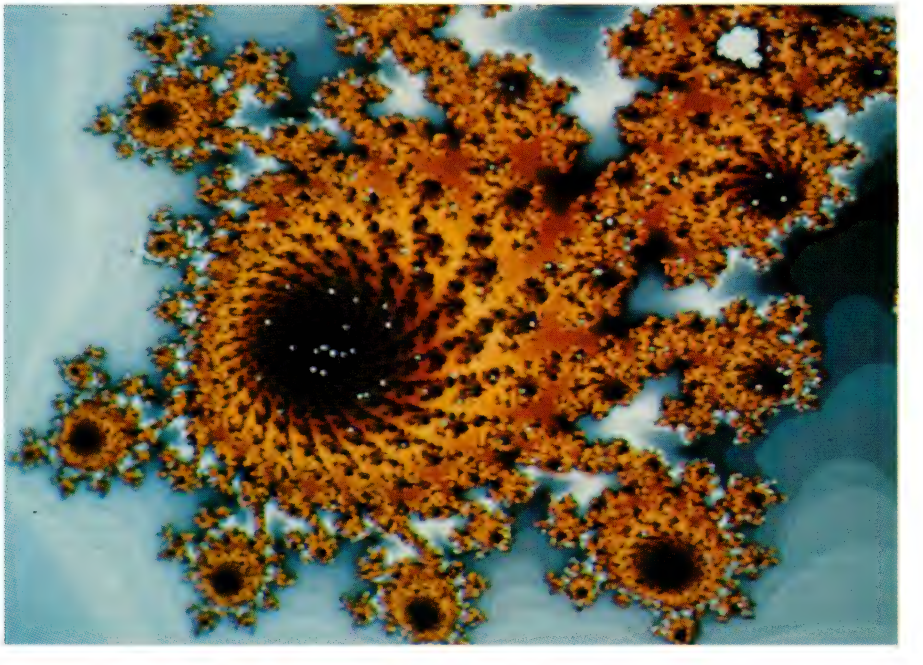
5) Zooming alters the focal length of the camera to move closer to the subject or further away. Zooming can involve the use of special equipment such as a telephoto lens and this should be specified on the production page.

Also associated with the camera position is the size of the shots. Shot sizes are specified as: Very Long Shot (VLS), Long Shot (LS), Medium Long Shot (MLS), Mid Shot (MS), Medium Close-Up (MCU), Close-Up (CU), Big Close-Up (BCU). Another aspect to remember is whether the camera is being objectively or subjectively positioned. For example, if a camera is used to film a person driving a car then this would be an objective camera position. However, if the camera is placed inside the car and looking out the window then this would assume a subjective viewpoint. The audience interprets this as looking through the eyes of the driver as opposed to watching the driver. When used in computer animation, subjective camera movements are very powerful devices because the motion can be extremely flexible and physically impossible to recreate in the real world. Such camera movements are apparent in computer generated television commercials where the camera travels across, through, and around objects.

A brief description of the lighting arrangement for a sequence should also be included on a production page. For example, a scene may comprise a lighting arrangement of two lights that are placed on top and in front of the subject. The positioning of the lights and their intensity needs to be considered during the storyboard stage. During production, however, the lighting arrangement may not be viable in which case the lighting set-up may be altered. Knowing what will be effective lighting prior to production is a matter of experience.

The final piece of information on a production page concerns how sound will be incorporated into the video being produced. The music or sound effects should be described and the position in the script of the corresponding dialog noted. □

The most common type of balance found in compositions is asymmetrical – when unlike shapes compete for attention, it appears less contrived than symmetrical.



A fractal image is an excellent example of variation in unity.

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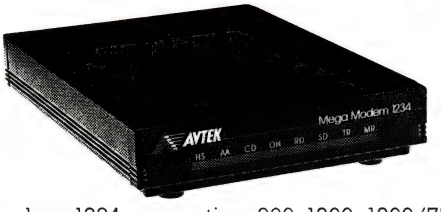

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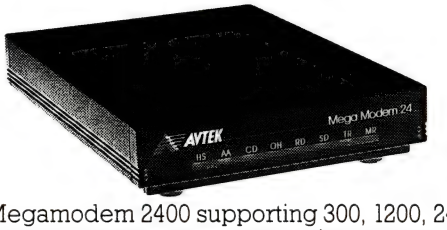

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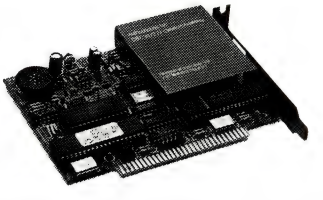

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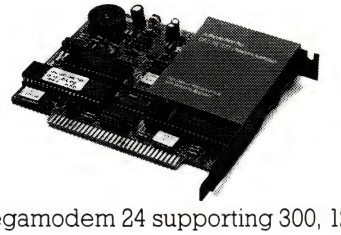

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WHEN THE SCANNING IS OVER

There's hardly an area of business where scanning wouldn't be useful – and we've had the technology since the mid-'70s. So why, asks Stewart Fist, isn't scanning and OCR more widely used?

IF YOU ARE seriously into desktop publishing, then you are probably considering a scanner – at least it will be high on your wish-list. The real question is whether you should now transfer it from this wish-list to your 'wants-list' or maybe go the whole way and add it to your 'needs-list'.

The value of scanners in desktop publishing is reasonably obvious even though it is often kept in the 'closet'. Most of us can type, even with only two fingers, but few of us can draw – so the scanner allows us to pirate graphic elements for our own publications. You can scan in line-drawings, cartoons, elaborate borders and the like (all meticulously drawn by some lowly paid commercial artist) and alter them just enough with a paint or drawing program to escape the copyright laws. Most scanner-owners won't admit doing this openly, but they do it nevertheless. It may be immoral, but it's not necessarily illegal!

Then there's the dream of all computerphiles to have enormous databases of relevant information, with everything immediately selectable and instantly available on-line. No more walking to the filing cabinet. You just click a couple of keys and make a choice from all the letters ever written to, or by, the company; everything you want at your finger tips.

Optical Character Recognition

THIS TEXT emphasis takes the scanning idea even further because it assumes that Optical Character Recognition (OCR) functions will be performed on the scanned images, and everything will be changed from graphics files into ASCII text. With these two possibilities, scanners aren't a technology that needs much selling to business – in fact, there's hardly any area of business where scanning of some kind wouldn't be useful if the costs were right and the machines lived up to expectations. And this long-anticipated commercial boom has been around since the mid-'70s.

So why hasn't scanning and OCR become more popular?

Back in those early days of PCs, we all knew that 'computing would really take off' with a cheap, easy way to input data (predominantly text at that time). Very few people had the vision of a PC on every desk – and most executives couldn't (or wouldn't) type anyway.

And since, until a few years ago, most business memos, letters and reports were laboriously keyed and re-keyed on IBM golf-ball typewriters (remember them?), and hand delivered in paper sleeves called envelopes (before LANs and email), it was obvious to everyone that scanning and optical character readers were the top technology on the business agenda for the '80s.

It was perfectly obvious – and quite wrong!

For a start, OCR technology didn't evolve at the rate expected. It wasn't that easy, and most of the research energy was directed towards creating hardware solutions. This appeared to be the way to go because no reasonable PC would ever have more than 640K or RAM and that was clearly insufficient for OCR.

Bit-mapping

THE SCANNING side of the operation proved to be relatively simple (creating bit-mapped files), but tracing, page recognition and optical character recognition? These were problems of a different order. Even now these very complex techniques are only just beginning to find their feet in software, and it will be many years before most users are entirely happy with them.

The output of the scanner is always a raw bit-mapped file. It is nothing more than a series of horizontal scans converted to digital pixel values and stored in a chain of memory locations in RAM. There will be one pixel/memory location for each resolved point on the original material.

This type of file can be changed with a 'paint' program, or simply stored to be reused later. You can scale bit-mapped images up or down, but unless the scaling ratio is an integer multiple (twice or three-times) then some elements in the image will always be distorted (by aliasing). Scaling doesn't alter the essential block-nature of the original shapes either – so enlarged images always appear to be jagged and lack smoothness, but for simple graphical reproduction the quality of these bit-mapped files will be OK.

It doesn't matter at all to the computer whether the page you scanned was text or image – it treats them both the same. So bit-mapping supplies the foundation for all other processes.

If the file is intended for more elaborate graphic operations then you will need some advanced tracing software. This is software that takes a raw bit-mapped file, interprets it initially in vector form, and finally translates these vectors into a series of independent 'objects'. This tracing ('vector recognition') process is a form of reverse-engineering – imagine a CAD or drafting program played in reverse!

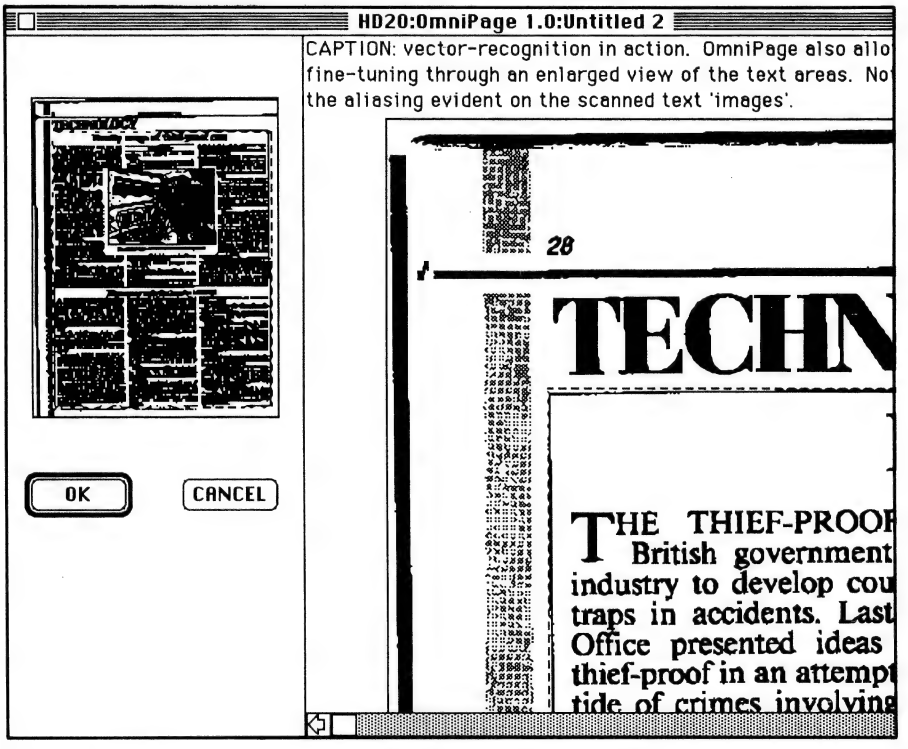
With a good tracing program, and a bit of judicial grouping together of sub-objects, you should be able to take an elaborate graphic image and 'disassemble' it to the stage where you can take the wheels off the bicycle, the Toyota out of the traffic

jam, the hat off the lady's head or the baby out of the bassinet, and shift them around the screen at will.

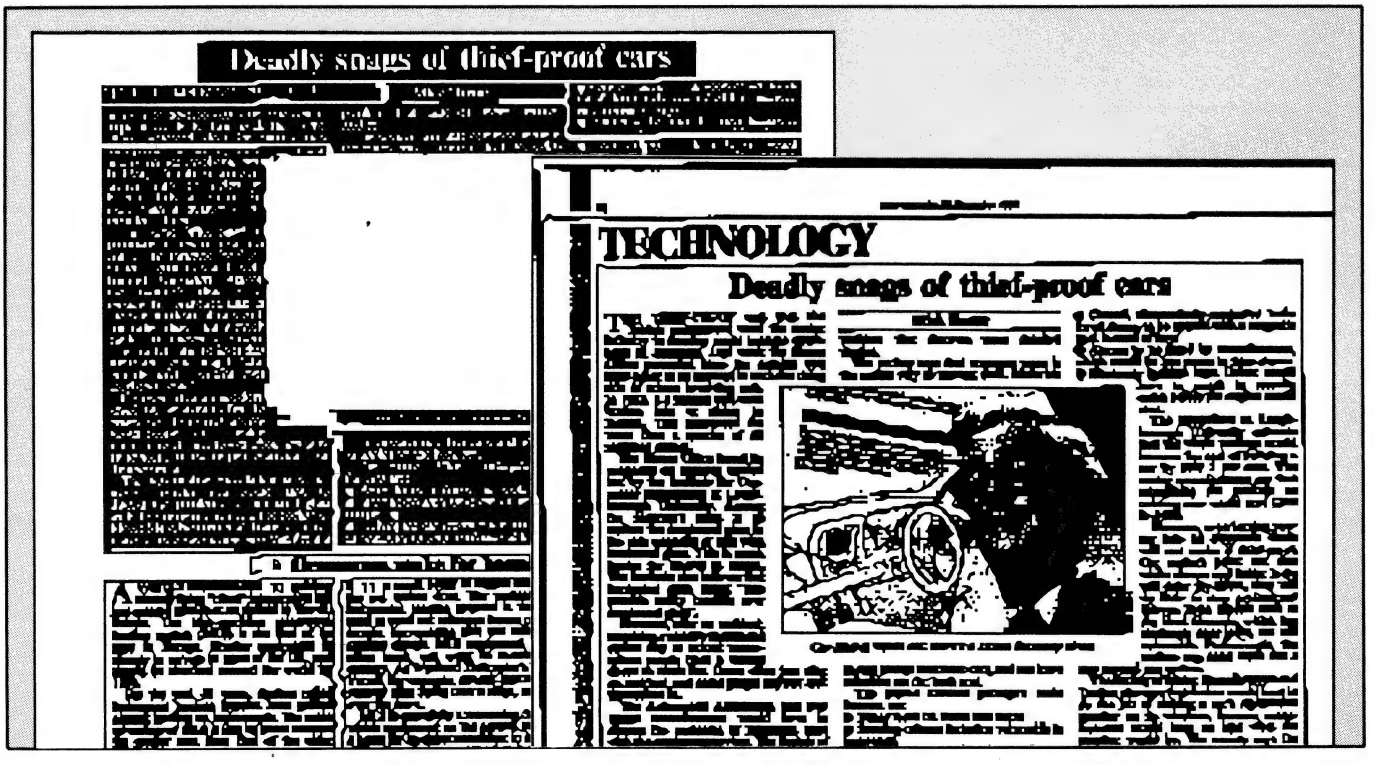
Grouping object-oriented image elements allows you to use every logical graphic 'unit' either together or independently, complete or disassembled, in an entirely flexible way. Objects, once traced, are selectable, shiftable and copyable.

It was perfectly obvious – and quite wrong!

Tracing programs are generically known as vector-recognition programs, where the term suggests that the application 'sees' the shapes and lines on the screen as shapes and lines, and it gives weight, location, direction and distance to these elements; they are no longer just a mosaic of dots recorded in memory locations. Tracing programs are still in their infancy, but we'll see a lot more of these in the future.



As well as vector-recognition, OmniPage also allows fine-tuning through an enlarged view of the text areas. Note the aliasing evident in the scanned text 'images.'



OmniPage takes a raw bit-mapped file (right), interprets it initially in vector form, and translates these vectors into a series of independent 'objects' (left). This tracing ('vector recognition') process is a form of reverse-engineering – imagine a CAD or drafting program played in reverse!

Page-recognition

ONE FORM OF vector-recognition that sits halfway between image-scanning and word-scanning, is that of page-recognition. Modern OCR programs now have highly sophisticated tracing algorithms to help identify and select the areas of text before character-reading can begin. Among the 'under-$3000' programs, OmniPage from Caere (for both the IBM and the Mac) stands out in its abilities here.

A good page-recognition program will even outline and separately box 'crossheads' and those larger bolder words that sub-editors throw.

If you scan the front page of a tabloid newspaper, and set OmniPage to work, it will first of all look for all blocks of similar type, outline these and identify them. There's quite a lot of intelligence coming into play here.

For instance, it will see the four-deck, 2-inch Helvetica headline –

SHOCK, HORROR
SPACE ALIENS
ABDUCT 16Y.O.
SCHOOLGIRL

– as four lines of text, and trace/outline it as one unit, ready for later treatment by the OCR module. It will also identify that area of the page which holds the photo of the grief-stricken schoolgirl in her bikini, and recognise that this is pure image, not text.

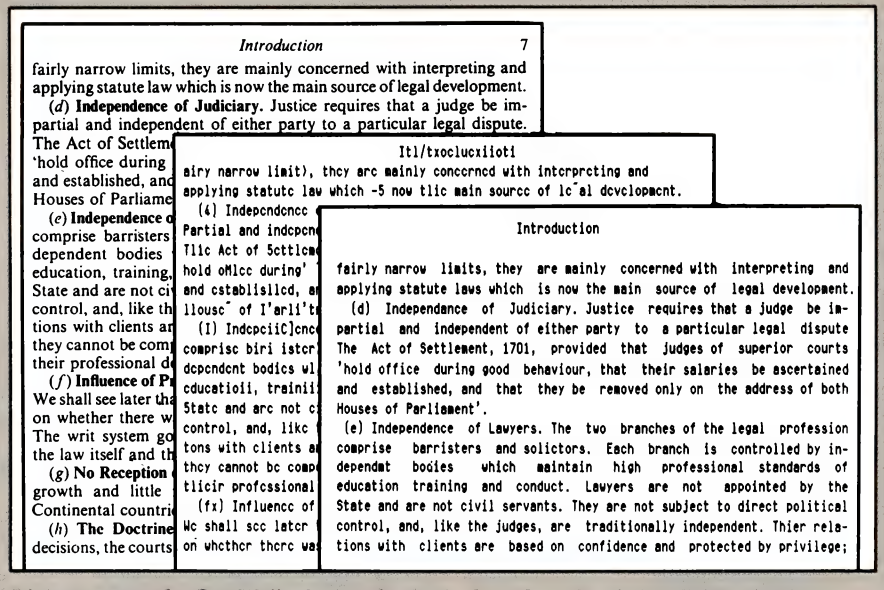
The 'body-copy' of the story, which will undoubtedly exist below the photo in a couple of columns of lurid text, will be outlined, identified, and sequenced by the page-recognition algorithms. They will assume that the top units on the page are always sequenced before those on the bottom, and that left units always precede those on the right.

A good page-recognition program will even outline and separately box 'crossheads' and those larger bolder words that sub-editors throw (seemingly at random) into the spread of 'body-copy' to break up the visual appearance of the page.

FOR SOME years now we have been watching the development of scanner technology – particularly the optical character recognition side of things – with interest. While image processing is a fairly sophisticated field and companies like Bell and Howell, Wang and Hewlett-Packard are offering 'real' systems, text processing lagged behind – until now.

In our March '89 issue, Neil Munro reviewed the original release of OmniPage which was described by Larry Miller of the Caere Corp. (the US-based developer) as an 'information ownership package, because it allows you to make printed information yours'. The promise was there, but the reality was that the software lagged behind.

The problem with OCR software has been that is was developed around 'pattern matching' – that means that the software needed to be taught every character it was expected to recognise. If your scanning involved only a few different typefaces, this could give a viable system (although many who tried it found themselves replacing low-paid junior typists with much higher-paid seniors). Another problem with pattern matching is that the space between characters changes as letters are kerned and proportionally spaced – the solution is to teach the software troublesome combinations of letters, but this can soon get out of hand and take longer than re-keying the document.



It's easy to see why Guy Weller is so enthusiastic about OmniPage's Parallel Reader: in the background is the original document (note the justified, bold and italic text); in the middle is the result of scanning with one of the systems Doctor Disk was using before; in the foreground is the result from the Parallel Reader. The accuracy of the OCR speaks for itself, but the time taken for the two systems is also remarkable: the 'old' system took some five to six minutes to scan and interpret the 40-line page, while the OmniPage took about 30 seconds, and then gave us output in WordStar format.

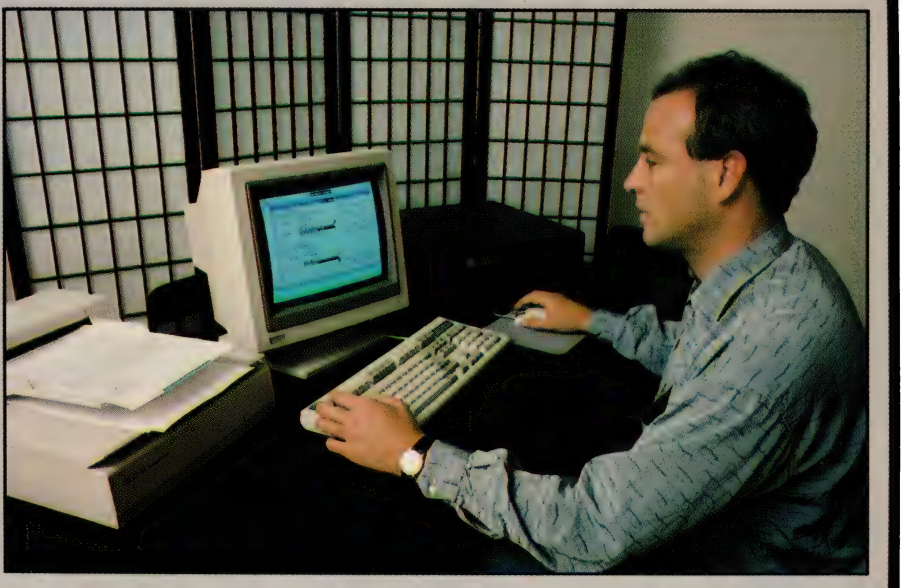
Distinguishing text and photographs

NOW THIS IS all very clever stuff, although I won't say that OmniPage is infallible. It makes a lot of mistakes, but so do I when I read some newspapers, and you can hardly expect a machine to be better at this type of operation than humans. OmniPage's page-recognition algorithms apparently distinguish text from photographs by looking at the average run of black and white dots in the bit-mapped image. If you've scanned the image at 300 dots to the inch (12 to a millimetre), the average 'ascender' or 'descender' (uprights) width of a normal text character will be about 3 bits wide. On average, there will also be half-a-dozen or more white bits before the next group of three black, and every dozen or so scans there

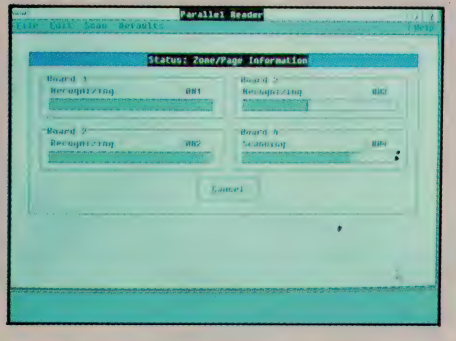
Parallel Reader

OmniPage 2.1 uses a sophisticated artificial intelligence system, AnyFont, to recognise characters. While we are not privy to the algorithms used (and Caere isn't telling at this stage), they work something like this: the software 'knows' the letter 'a' by certain unique characteristics which might be 'a half-height letter, formed from an oval/circle to the left and an adjoining mostly vertical line to the right'. That's general enough that the font or style hardly matter.

In the past, document scanning was slow – scanners could sweep a page at a reasonable rate per minute, but it could take the software up to 10 times as long to interpret it. Caere attacked that problem and came up with the Parallel Reader, a customised '386SX-based machine. Coupled with the software, the system is rated at a throughput of 2500 words/-minute and a character recognition speed of 700/minute. This is accomplished with the aid of four 16MHz 68020 interface boards, each with 2Mb of memory. Using these boards, the system works on a page at a time, and it works fast enough that the fourth board is rarely used. For the first time, OCR is working as fast as the scanner.



The stylish black box to the right of Ian Telfer of Omnipage is the Parallel Reader. While most users would dedicate it solely to processing scanned documents, the machine is a standalone '386SX and could be used for other computing work.



The Parallel Reader achieves its rated throughput of 2500 words/minute and a character recognition speed of 700/minute with the aid of four 16MHz 68020 interface boards, each with 2Mb of memory. Here, three pages are being interpreted, while the fourth is being scanned.

One of the breakthroughs with the system is that it can export files directly to a number of formats including dBase and Lotus 1-2-3, amongst others, plus most of the popular wordprocessors. There is also the ability to convert bit-mapped images to PostScript; files are stored in compressed TIFF format.

The system is available from Performance sales, (02) 906 4900, for $16,495; it includes a 40Mb hard disk and VGA card – to that you need to add a monitor, mouse, MS Windows, and a scanner. There is an alternative if that can't be justified, however; or, if you want to try the system before making a decision.

Perth-based Doctor Disk has been offering a bureau scanning service in all mainland capitals and Auckland for some time now. Guy Weller, managing director of the company, was so impressed with the Parallel Reader, that Doctor Disk is now distributing the system as well as using it in its branches. Scanning is so fast for all but the longest documents, and the service is 'while you wait'. Costs vary considerably with the job, but start from $0.85 per page – remember that is for almost absolutely clean copy, on disk (supplied by you) in less than a minute.

At the moment, the largest users of the scanning service are government departments, solicitors and publishers, but the Parallel Reader has made document scanning an alternative for any office where masses of information are keyed in or those in which filing cabinets full of documents need to be readily accessible. (Imagine an office without a mis-filed document!)

will be a couple of horizontal lines (the leading) without black 'bits' at all.

A clever little algorithm can identify this type of random pattern and deduce that the area contains text, and it can also make some judgment about the size of the text characters. If it finds the same basic relative pattern, but bit-numbers that are an order larger (10x) than normal, then it can assume that it is dealing with headline type.

The other skill these programs need is the ability to discover and identify 'rules' and 'hairlines'. Horizontal rules (lines) are used in all forms of printing layout to separate different stories, and fine ('hairline') rules are used between columns of text in newspapers and magazines. Sometimes the whole area of text is surrounded by rules, and heavier box-rules are used to identify sidebars and 'boxed items' on a page.

The program needs to identify these as continuous one-dimensional arrays of bits, each surrounded on both sides by parallel runs of white, before it can safely assume it is dealing with column or story dividers. When you think about these problems, it is no wonder that good OCR software takes a megabyte or two, and costs a couple of thousand dollars.

Now that the program has recognised and sequenced the elements on the page,

Can your typist type 1,
Probably not, bu

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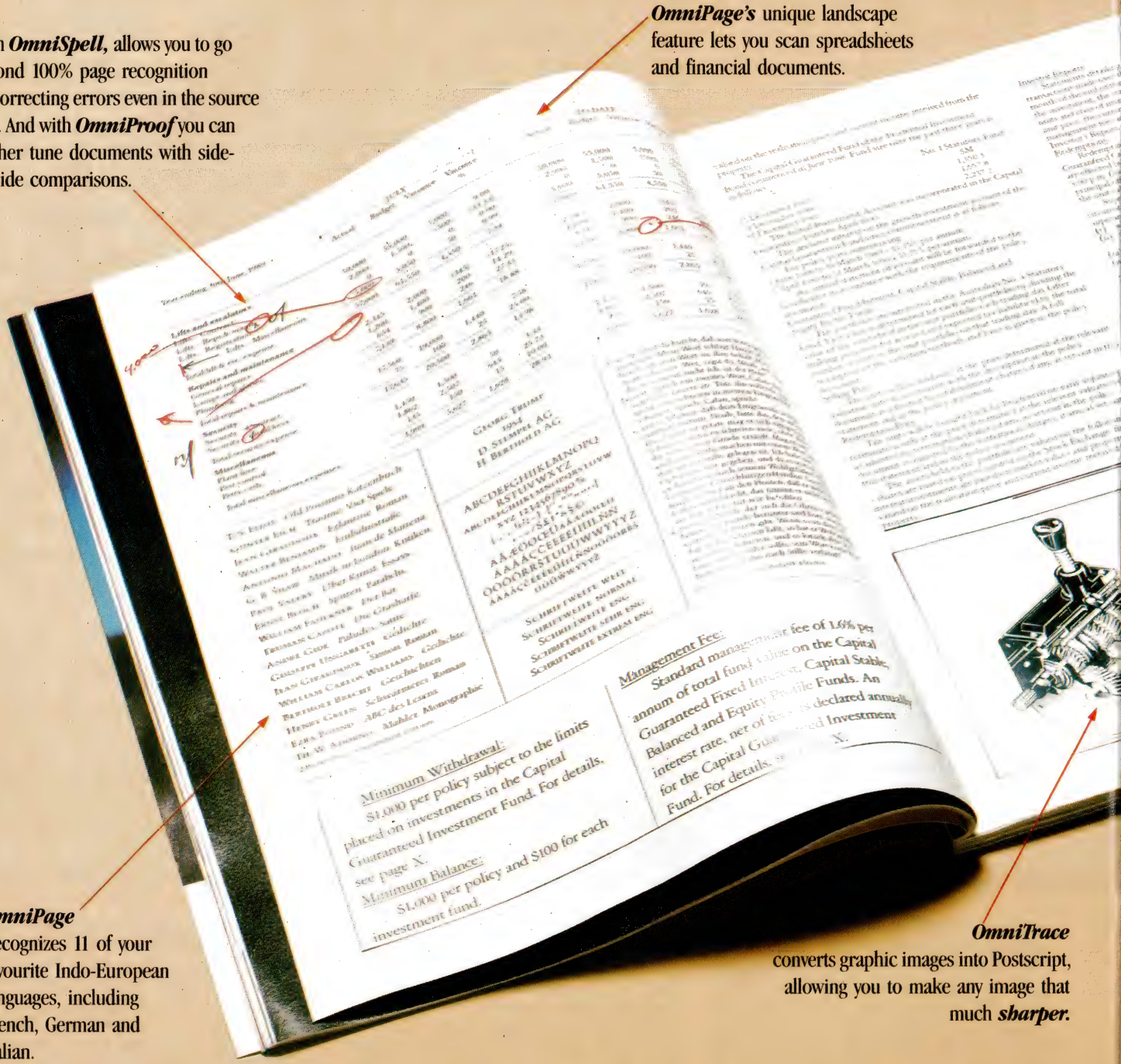

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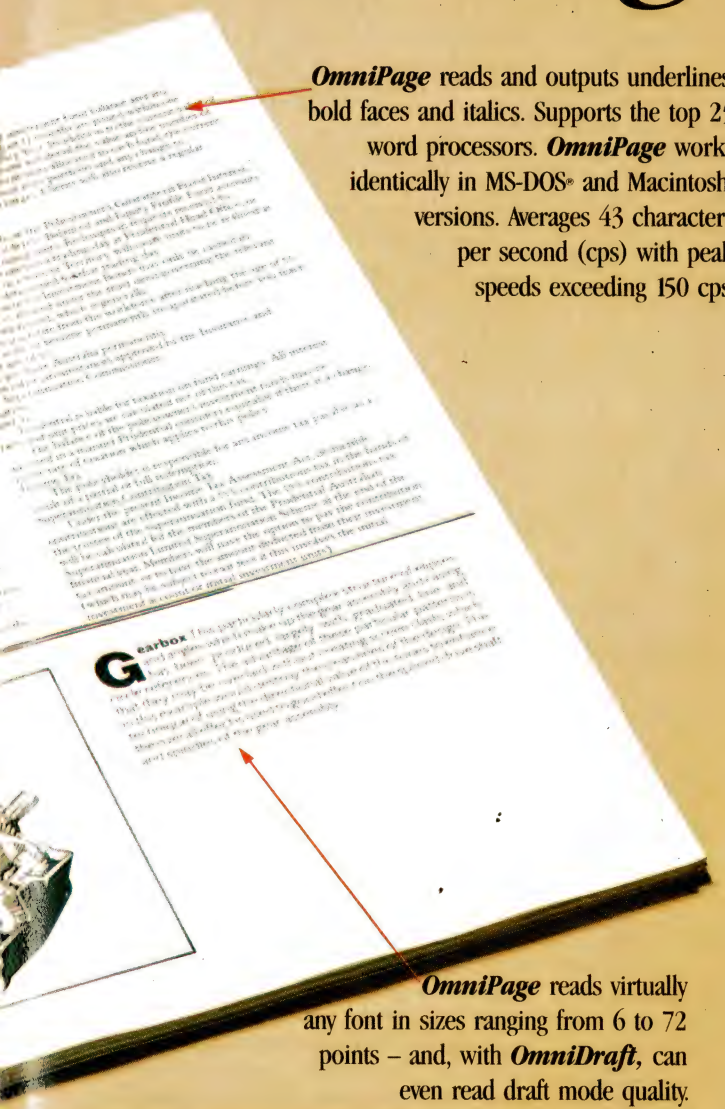
000 words per minute?
t OmniPage can.



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OmniPage for a PC 286	3495.00
OmniPage for a PC 386	2195.00
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OmniSpell (Interactive Spell Checker)	250.00
OmniDraft (Dot matrix option)	250.00
OmniTrace (Image enhancement option)	325.00
OmniProof (Document proof reader)	325.00
VIRTUAL (2.0) for MACINTOSH	from $395.00
THE COMPLETE PC Full Page Scanner	1395.00

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PUBLISH! MAGAZINE

"READERS CHOICE AWARD"

ELECTRONIC PUBLISHING & PRINTING MAGAZINE

"Best Product 1989"

The Complete PC Page Scanner is the first low cost scanner for both PC's and Macintosh computers to break the $2,000.00 (Aust).

INFO WORLD MAGAZINE

Best value for money on the market – November 1989.

Virtual™ provides 14 Mbytes of Ram for Macintosh users for $28.50 a megabyte, and is another one of our Award winners.

MAC USER MAGAZINE

Best Macintosh utility product
"EDDY Award" best product 1989.

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Scanning graphics formats

Bit-mapped: If you want an image that can be used in a paint program like MacPaint, you need to be able to select the number of dots per inch (dpi). At 72 dpi the MacPaint image will be the right size, but if you scan at 150 dpi, the image will be doubled in height and width. At 300 dpi, the image will be 16 times as large. Bit-mapped paint programs like MacPaint always need to have the dpi scanning carefully selected.

Pict: If you want an object-oriented image for use in a drafting program, save your scanned image in Pict format. In many programs you can choose 'actual size' or various other size selections. Maximum size will often allow you to produce much more acceptable graphics and make it easier to trace – the image can be scaled down after. Many OCR programs use this format.

EPS: For graphics which are to be used in some page-layout programs, you should scan the images in Encapsulated PostScript (EPS) format using the highest possible resolution. TIFF is generally recognised as the most likely alternative to EPS.

PostScript: The standard PostScript format is required by some of the older page-layout programs (ReadySetGo, for example) which can only handle small files up to 32K. With this format you can specify different screens that can reconstruct the image using line, dot, star, or even letter images. You can scale, manipulate, rotate and offset PostScript objects at will.

TIFF: Tagged Image File Format (TIFF) is the best file-type to use for scanned half-tone images. Large images take up less space in this format, too. It was designed originally by Aldus for desktop publishing, and it is likely to remain a standard in this area.

COMP: A run-length compression system to reduce the number of bits used to represent white space is used on TIFF files, giving Compressed TIFF (COMP) files.

Scaling doesn't alter the essential block-nature of the original shapes either – so enlarged images always appear to be jagged and lack smoothness.

we've then got the problem of interpreting the characters and creating an ASCII file with, or without, some formatting (bold, italics and so on). OCR does for characters and words what vector recognition does for graphic images and page-recognition. But here the problem is probably even more profound because we expect more intelligent decisions to be made.

When the computer is disassembling a graphic image, we assume that the operator will stand over the process and make some of the decisions. Are the spokes of the wheel part of the bicycle, or perhaps they are background elements seen through the circle of the wheel? Only a human brain can identify the relationships of all screen elements at the present time, and it will take an advanced form of supercomputer-based artificial intelligence, with a prolonged learning experience with images, to make these judgments automatically.

OCR has a task which is easier, on one hand, and much harder on the other. The easy part, is that the program only needs to recognise a fixed number of image types. In English we use about 100 basic characters if you include the alphabet in upper and lower case, numbers, punctuation marks, then the other ASCII symbols like #, $, %, & and +.

But you've got to add to this range the various styles and sizes of the lettering, and the fact that the program doesn't simply need to recognise the images, but interpret them also when they are touching, or when the ink runs. Each font used on almost any printed page will have, at a minimum, the Roman, Italics and Bold styles, and there could be underlined and outlined fonts on the page as well.

Character size isn't such a problem, because the matrix-matching techniques generally used can be scaled up for the larger size type relatively easily. Most OCR programs are designed to work well on

typesizes of about nine to 10 points, which are the standards used in the body-copy of most newspapers and magazines. If the program can identify a matrix-match with a 10-point character, it can probably recognise a 60-point character where only one in every six bits is used in the matrix – horizontally and vertically. So size variation is more a page-recognition than an OCR problem.

Matrix matching

GENERALLY THE present OCR programs don't use vector-resolution, but rather matrix matching concepts. But there are so many variations and subsidiary algorithms being applied, that it is impossible to make any meaningful statement about the current state of OCR technology. The basic matrix-matching approach is to hold in memory what amounts to bit-mapped images of the various typefaces and typestyles, and compare these with the character elements (if you can separate them) from the scanner's bit-mapped image. Best-choice judgments are going to be correct most of the time even if the font is marginally different from those stored for reference in the program.

However, it takes a high degree of intelligence to recognise and reject underlined words, and many OCR programs seem to have difficulty with the slope and style-change of italics, even if they can read the Roman and bold styles well. Most OCR programs only output ASCII text files, anyway – so even if they do identify these special styles in the correct way, they won't reproduce the character-styles in the output file. However, top-of-the-line OCR programs like Dest from Remington will insert the formatting codes for popular wordprocessing packages (WordStar, DisplayWriter 3 and Microsoft's Word) automatically, so the ads say!

One unread or incorrect character in 500 seems to be about standard with typewritten originals, but the error rate rises sharply with printed material mainly because of the proportional spacing and the fact that characters often touch ('ligature', it's called). The main general sources of confusion are with 0 (nought) and the capital O; the letter m with n, double-n and w; the figure 1 with a small l or capital I; column 'hairline' rules with l, L or I; and words with combinations of these like 'will', 'mill, 'fill', 'bill' and 'dill'. Each particular font and style will then have its own sources of confusion – some of which don't make much sense to the human observer. It is very hard to guess when an OCR program will read OK and when it won't.

The major difference between OCR programs is with those that can be 'trained' and those that have the full limit of their functionality built-in in the programming stages. Training an OCR program involves the user making corrections progressively as the program attempts to read a particular font, and from this interaction the program is able to construct an alternative matrix with which to match some of the difficult characters it has found. This is only a worthwhile approach if a large amount of similar text is to be scanned – and usually business text material is highly variable.

Many people also assume that trainable programs will necessarily achieve superior results to the untrained programs, but this is by no means certain – except, perhaps, in some specific 'difficult' fonts.

A clever little algorithm can identify this type of random pattern and deduce that the area contains text, and it can also make some judgment about the size of the text characters.

The second major difference between OCR programs, is in the use of lexicons or dictionaries. A character recognition program can theoretically decrease the number of erroneous characters it produces if it is able to consult a dictionary. It will then make a decision based on the context of the characters in a recognised word. If it thinks the character is an 'm', but the lexicon only has the word 'font' (not 'fomt'), then it must modify its opinion.

Again, this approach has more than superficial attractions – but think about the legal chaos that could be caused if the program decided that 'not' was the most likely interpretation of a word in a contract. Correctly, the word should have been 'nor' or 'now'. In many cases it is better that the program throw up a hash mark or a tilde-sign if it can't be confident about a character, rather than take a stab-guess.

It depends, of course, on the purpose to which the output will be put. If OCR is being used just for archiving letters and reports in machine-readable form, then a one per cent failure rate probably isn't very significant and the use of a lexicon isn't likely to create problems. If OCR is being used for desktop publishing however, one per cent of characters misread makes the program virtually useless. It is probably going to take you more time to make the corrections than it would to re-key all the material.

ICR

BUT, THINGS can only get better. Future directions in OCR are in the application of AI (Artificial Intelligence) tools. This AI approach is given the acronym ICR (for Intelligent Character Recognition). Some of the coming ICR programs include contextual analysis in addition to page-recognition and the use of lexicons, and they have enough 'savvy' to know not to make difficult 'not/nor/now' decisions without reference to the user.

ICR packages are self-learning. If they can't make a decision about a character or a group of characters, they will skip the difficult section and pass on through the document. At a later stage the program will decide that it now has enough experience with the doubtful character (through the progressive use of its lexicon) to be confident as to the identity, so it will return and fill in the earlier gaps.

This self-learning also means that the program speeds up as it moves through longer documents – a point that is more important than you might think. Sluggish page-recognition, and snail-like OCR programs working tediously on masses of business documents can often make OCR almost worthless. Naturally, the new ICR programs will also handle formatting – not just italics and bold, but also the tab positions of tables, and structured forms, such as tax returns.

Whatever the final form, you can bet your life that future ICR programs will need many megabytes of memory, and only function on the faster 80386- or 68030-based machines. Even with the present generation of OCR programs you need about 5Mb to comfortably support the complexity of the applications, the bit-mapped graphics, and the ASCII output. □

THE PROPHET

LARRY LEWIS

Justice?

THIS IS A special month as it is the month when the original Prophet, running on a now old and obsolete TRS-80 Model I, first came into being. After one month without Prophet, I just couldn't take it any more – no mail to read, no flashing lights – I was having withdrawal symptoms! Unfortunately, I missed all the good people who used Prophet more than I disliked the others. So, thanks to some help from *Your Computer* and Maestro, we have a system running. At the moment it is pretty bare, but thanks to the old friends from GTNet (especially Ken Thompson) and some long time US based friends, the system is slowly starting to come back to life.

The only difference now will be that I will not put up with the 'others'. They can go and infest other suitable cesspits and leave the majority of good Prophet users to enjoy themselves and the system!

There are quite a few systems around that probably should be forced to shut down due to their activities.

Our own KGB?

UNFORTUNATELY, I HAVE to write this as though it were an imagined occurrence, mainly because it has really happened and some of the names involved are not quite clear yet.

A friend of mine who runs a very busy Bulletin Board (well-liked by the users) woke one Monday morning and started doing those normal morning duties – having a shave, checking the BBS, breakfast, throwing some clothes on, you know the drill, and suddenly, the power went off!

'Geez, I paid the bill – didn't I?' he thought. And, then there is a knock at the door, or to put it correctly, a bashing that implies you have about two seconds to open it. Lo and behold, what a lovely sight – a bevy of federal constables just dropping in to say 'howdy'.

These defenders of our rights barged in and started muttering about illegal activities using computers, copyright violations, search and seizure and other legal incantations. If they find anything that even remotely resembles something that could fit the term Komputa (they must be communist), they start heaving the stuff into a truck that appears at the door.

Before you know it, half the house is in the truck and you're left feeling as though you were a drug dealer rather than a lowly BBS operator.

Now, while all this was going on, you would think that my friend would be able to review the 'court order' these guys were enacting. Well, as it turns out, there was no court order (and I might add a number of weeks later there is still some question about what it was that they were entitled to do).

No legal advice was suggested – I suppose the official opinion is that you should know your rights. There was no chance to ask what the hell he had done to require being treated like a major crime figure.

The police have this equipment which belongs to someone else, who has not been charged with anything (yet, I suppose I have to add) and they have not advised when it will be returned. What does the person do for computers while this goes on? Presumably, they were being used for something, will they pay wages if they find that this person has done nothing wrong?

Complete BBS Registry Listing

WE PUBLISH THE COMPLETE listing for the ACT and New South Wales in July, October, January and April; the listing for Victoria, Tasmania and the Northern Territory in August, November, February and May; and South Australia, Western Australia and Queensland in September, December, June and March.

Registration of Bulletin Boards are only accepted electronically at the primary electronic collection points – please address all enquiries through them.

An obvious point to make as well is that they have these machines, and without any representative of my friend, they are prying into all the files on the computer. I assume that they are using a computer expert for help, but what safeguard has my friend got that none of these people will 'plant' something on the machine? More to the point, what happens in regards to any private and personal data stored on the machines?

It is even more worrying when you suspect that the computer expert helping the defenders of liberty, truth and the Chinese government way is probably the person who is the 'police informant' and known to have a personal grudge against the operator.

All this is ludicrous – why didn't they impound his microwave oven – it has a microprocessor and software, he may have pirated an enhanced piece of software for it? What about his car? If it had EFI, did they confiscate it to make sure he hadn't done the same with the on-board computer?

Perhaps you think that I am treating this as a joke, well you are wrong. It would be funny except it is so damned serious. Anyone that knows me is aware that I believe in buying any package that I use, if I believe the software is overpriced, I simply will not use it – no matter how good it is! But for our scarce police resources to be used in this manner seems obnoxious.

There are quite a few systems around that probably should be forced to shut down due to their activities with piracy, pornography on display to minors and so on, but the 'evidence' of what these systems are doing is generally easily obtained. All the police need to do is buy a modem and logon to the systems involved. In a number of cases the expense of court action would be unnecessary. These scum boards tend to be run by 'kids' in their

parents home – guess what a small advisory visit might do in these cases.

There never seems to be a middle road with our legal system of late, it is either total disinterest or an over-the-top crack down which generally only affects innocent people. □

Primary electronic collection points

ACT – PC Exchange Opus (062) 581 406

NSW – 2000 & Beyond Alive BBS (02) 544 7123

Vic. – Custom Programming BBS (03) 848 3331

Qld. – The Galaxy GateWay Computer System (07) 207 8900

SA – Oracle PC-Network (08) 260 6222

WA – 1990 Multiline (09) 370 3333

Tas. – Hobart Users Bulletin Board (002) 435 041

BBS Listing 9005

Mon 7 May 1990

New systems: 21
Online: 8
Unknown: 3
Temporarily Offline: 5
Permanently Offline: 12
Name Change: 8
Amended: 33
Total Systems: 421

AUSTRALIAN CAPITAL TERRITORY

Cause BBS
Sysop: Peter Mcneill
Phone: (06) 255-1469
Baud: V21 V22 V22bis V23
Access: Reg
Computer: IBM PC Clone
DOS: MS DOS
BBSoftware: Opus

Ghost of Opus
Sysop: Scott Furry
Phone: (06) 258-7160
FIDOnet: 3:620/240
Baud: V21 V22 V22bis B103 B212
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

MICSIG Fido
Phone: (06) 285-1026
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: Fido

PC Exchange Opus
Sysop: Phil Harding
Phone: (06) 258-1406
FIDOnet: 3:620/244
Baud: V21 V22 V22bis V23
Access: Mem LVA

PCUG Bulletin Board
Sysop: Alan Salmon
Phone: (06) 259-1244
FIDOnet: 3:620/243
Baud: V21 V22 V22bis V23 PEP
Access: Mem LVA
Computer: IBM AT
DOS: PC DOS
BBSoftware: Opus

Percom BBS
Sysop: Alex Reutt
Phone: (06) 281-3119
FIDOnet: 3:620/247
Baud: V21 V22
Access: Public
Hours: Daily: 2100 - 0700
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

The Capital BBS (CUG [ACT] Inc.)
Sysop: Basil Chupin
Phone: (06) 281-0847
FIDOnet: 3:620/241
Baud: V21 V22 V22bis V23
Access: Mem LVA
BBSoftware: Lynx

NEW SOUTH WALES

2000 and Beyond Alive BBS
Sysop: Greg Kuhnert
Phone: (02) 544-7123
FIDOnet: 3:712/513
Baud: V21 V22 V22bis V23 B212
Access: Mem Reg LVA
Computer: IBM 386sx Clone
DOS: MS DOS
BBSoftware: RemoteAccess

500cc Formula One Amiga BBS
Sysop: Dino
Phone: (02) 550-6858
FIDOnet: 3:712/218
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg
Computer: Amiga 2000
DOS: AmigaDOS
BBSoftware: BBS-PC!

A Southern Rendezvous
Sysop: Kevin Withnall
Phone: (042) 26-3382
FIDOnet: 3:712/206
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

ABCOM-dataLINK
Sysop: Ben Sharif
Phone: (047) 36-4165
FIDOnet: 3:713/304
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM AT Clone
DOS: PC DOS
BBSoftware: QuickBBS

ACE BBS
Sysop: Adrew Davies
Phone: (02) 664-1303
FIDOnet: 3:712/520
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem LVA
Computer: Atari 520 ST
DOS: TOS
BBSoftware: QuickBBS/ST

Aftermath BBS
Sysop: Ron & Andrew Clark
Phone: (02) 872-5520
FIDOnet: 3:711/804
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Amiga Connection BBS Club
Sysop: Mario Nicotra
Phone: (02) 744-6010
Baud: V21 V22bis
Access: Mem Reg VA
Computer: Amiga 1000
DOS: AmigaDOS
BBSoftware: BBS-PC!

AmigaMan
Sysop: Ron Carruthers
Phone: (047) 58-8006
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: Amiga 1000
DOS: AmigaDOS
BBSoftware: BBS-PC!

Amstrad ABBS
Sysop: Riccay Schmahl
Phone: (02) 981-2966
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: Opus

Another World Opus CBCS
Sysop: Michael Chan
Phone: (02) 718-7574
FIDOnet: 3:712/269
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg LVA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: OPus

APOLLOLINE AUSTRALIA SL BBS
Sysop: Richard Heppell & Stephen Chan
Phone: (02) 869-8349
Baud: V21 V22 V22bis
Access: Mem Reg LVA
Computer: Macintosh
DOS: HFS
BBSoftware: Red Ryder Host

Apple Users Group - Apple // BBS
Sysop: Cameron Brawn
Phone: (02) 449-7798
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Apple //e
DOS: ProDOS
BBSoftware: Proboard //

Arrow KBBS
Sysop: Mark Sinclair
Phone: (02) 451-2660
Baud: V21 V22 V23 B103 B212
Access: Mem Reg VA
Computer: C-64
BBSoftware: KBBS

Atari ST Users Club
Sysop: Andrew Brown
Phone: (02) 709-4038
FIDOnet: 3:713/604
Baud: V21 V22 V22bis V23
Access: Public
Hours: Weekdays: 1900 - 0700- Weekends: 24 Hours
Computer: IBM PS/2
DOS: MS DOS
BBSoftware: Minihost

Atlantis
Sysop: Brett Selwood & Mark Farnan
Phone: (02) 534-6944
FIDOnet: 3:712/504
Baud: V21 V22 V22bis V23 PEP
Access: Mem Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus / QuickBBS

AUG*MAC*BBS
Sysop: Richard Kempe
Phone: (02) 439-6142
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Macintosh
DOS: HFS
BBSoftware: Red Ryder Host

AUGUR TBBS
Sysop: Mark James
Phone: (02) 311-3052
FIDOnet: 3:712/302
Baud: V22 V22bis V23 V32
Access: Reg VA
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: TBBS

Australian Pick User's BBS
Sysop: Kurt Johannessen
Phone: (02) 631-8603
FIDOnet: 3:713/610
Baud: V22 V22bis HST

Access: Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: PCBoard

Avalon BBS
Sysop: Lance Lyon
Phone: (02) 319-1793
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: QuickBBS

BAD NEWS BBS
Sysop: Wayne Steele
Phone: (02) 587-8441
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Bill's BBS
Sysop: Bill Mastro
Phone: (049) 45-9166
Baud: V21 V22 V23
Access: Reg
Computer: Apple //e Clone
DOS: ProDOS
BBSoftware: GBBS Pro

Bit-Board
Sysop: John Hamill
Phone: (02) 411-6375
FIDOnet: 3:711/404
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

Blackboard BBS
Sysop: Will Black
Phone: (02) 692-9149
FIDOnet: 3:712/522
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Books BBS
Sysop: Jon Ruwolt & Chris Ruwoldt
Phone: (02) 281-4791
Baud: V21 V22 V22bis V23
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

Buzzards Haven
Sysop: The Buzzard
Phone: (067) 72-1438
Baud: V21 V22 V22bis V23
Access: LVA
Computer: Apple //e
DOS: PRODOS
BBSoftware: GBBS PRO

Classic BBS
Sysop: Tony Edward
Phone: (02) 489-7997
FIDOnet: 3:711/505
Baud: V21 V22 V22bis B103 B212
Access: Public
Computer: IBM XT
DOS: MS DOS
BBSoftware: Opus

Club Amiga BBS
Sysop: Ross Kellaway
Phone: (02) 521-6338
FIDOnet: 3:712/511
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Club Mac Remote Maccess System
Sysop: Brian Macdonald
Phone: (02) 907-9198
Baud: V22 V22bis V32
Access: Mem LVA
Computer: Macintosh Plus
DOS: HFS
BBSoftware: Red Ryder Host

Club-80 RTRS
Sysop: Michael Cooper
Phone: (02) 332-2494
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: TRS80 Model 4
DOS: LDOS

Coastal BBS
Sysop: Kevin Mann
Phone: (043) 23-2275
FIDOnet: 3:711/430
Baud: V22 V22bis PEP
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

Coastal Communications
Sysop: Chris Patten
Phone: (02) 977-6869
FIDOnet: 3:714/906
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Coffs Harbour BBS
Sysop: Andy
Phone: (066) 58-2096
Baud: V21 V22 V22bis V23
Access: Public
Computer: Amiga 500
DOS: AmigaDOS
BBSoftware: BBS-PC!

Comet C-64 BBS
Sysop: Eric Davis
Phone: (02) 599-7342
Baud: V21 V23
Access: Mem VA
Computer: C-64
BBSoftware: Comet
Note: Requires UltraTerm or Palette on C-64

Commodore Amiga BBS
Sysop: Paul Bourke and Graham Lee
Phone: (02) 664-2334
FIDOnet: 3:712/629
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Commodore Pursuit TBBS
Sysop: Warren Hillsdon
Phone: (02) 522-9144
FIDOnet: 3:712/512
Baud: V21 V22 V22bis V23 B212
Access: Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: TBBS

Communication 2000
Sysop: Ian Mason
Phone: (049) 59-2664
FIDOnet: 3:711/495
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT
DOS: MS DOS
BBSoftware: QuickBBS

Compax Computers
Sysop: Alex Sardo
Phone: (02) 890-1059
FIDOnet: 3:713/601
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

Computrol
Sysop: Bob Spence
Phone: (02) 489-6848
GTnet: 302/004
Baud: V22 V22bis V32 B212 HST
Access: Mem Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: GTPower

Conquest BBS
Sysop: Andrew Fryer
Phone: (02) 899-4093
Baud: V21 V22 V23
Access: Public
Computer: C-64
BBSoftware: KBBS

Cool Guy's Corner BBS
Sysop: Titus Chiu
Phone: (02) 416-7624
Baud: V21 V22
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Daylight BBS
Sysop: Mark Sefein
Phone: (02) 548-1429
FIDOnet: 3:712/613
Baud: V21 V22 V22bis V23 B212
Access: Mem Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

DefCom BBS
Sysop: Jere Lawrence
Phone: (02) 764-3949
Baud: V21 V22 V22bis
Access: Public
Hours: Daily: 2100 - 0800
Computer: Atari 1040ST
DOS: TOS
BBSoftware: QuickBBS/ST

Delta Net
Sysop: Geoff Arthur
Phone: (02) 457-8281
Baud: V21 V22 V22bis V23 V32 B103 B212
Access: Reg LVA
Computer: IBM 386 Clone
DOS: PC DOS
BBSoftware: RemoteAccess

Dick Smith Electronics BBS
Sysop: Bob Dyball
Phone: (02) 887-2276
Baud: V21 V22 V22bis
Access: Reg LVA
Computer: Acer 900
DOS: MS DOS
BBSoftware: Opus

Down Under KBBS
Sysop: Glen Myles
Phone: (02) 674-6647
Baud: V21
Access: Mem VA
Computer: C-64
BBSoftware: KBBS

Dreaded Ned's BBS
Sysop: Kelly Smith
Phone: (02) 955-9724
FIDOnet: 3:711/906
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

Eagle One BBS
Sysop: Terry Harvey
Phone: (02) 745-3190
FIDOnet: 3:712/704
Baud: V21 V22 V22bis PEP
Access: Mem Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

Eagle's Nest BBS
Sysop: Philip Dean
Phone: (02) 451-0535
FIDOnet: 3:714/409
Baud: V22 V22bis B103 B212
Access: Mem Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Easy Access GBBS
Sysop: -=*The Virus*=-
Phone: (046) 28-5114
Baud: V21 V22 V22bis V23
Computer: Apple //e
DOS: ProDOS
BBSoftware: GBBS

Eden
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Access: Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

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Baud: V22 V22bis PEP
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Computer: AT Clone
DOS: PC DOS
BBSoftware: Opus

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FIDOnet: 3:712/201
Baud: V21 V22 V22bis V23 B103 B212 PEP
Access: Reg LVA
Computer: IBM AT Clone
DOS: PC DOS
BBSoftware: Opus

Home Computing
Sysop: David Woodbridge
Phone: (02) 455-1806
GTnet: 302/011
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: GTPower

HomeGrown QuickBBS
Sysop: David Heaps
Phone: (02) 502-4307
FIDOnet: 3:712/214
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Hot-Line
Sysop: Nick Harvey
Phone: (02) 488-9375
GTnet: 302/018
Baud: V21 V22 V22bis
Access: Public
Computer: Premier 386/25
DOS: MS DOS
BBSoftware: GTPower

Hunter Schools' BBS
Sysop: Matthew Taylor
Phone: (049) 69-2851
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Illawarra BBS
Sysop: John Simon
Phone: (042) 61-8230
FIDOnet: 3:712/518
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: XT Clone
BBSoftware: Opus

Integra TEX
Sysop: Kevin Leong
Phone: (02) 746-1109
FIDOnet: 3:712/703
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: PC DOS
BBSoftware: QuickBBS

Inter City BBS
Sysop: Jodi Jackson
Phone: (02) 319-0925
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Intersoft BBS
Sysop: Craig Heading
Phone: (063) 72-3403
FIDOnet: 3:711/411
Baud: V21 V22 V22bis V23 V32
Access: Mem Reg LVA
Computer: Tandy 3000
DOS: MS DOS
BBSoftware: Opus

J & M's Systems BBS
Sysop: John & Megan Kelly
Phone: (02) 749-1935
FIDOnet: 3:712/625
Baud: V21 V22 V22bis V23 B103 B212 PEP
Access: Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

K.K.K BBS
Sysop: Jim Lynch
Phone: (02) 418-6005
FIDOnet: 3:711/416
Baud: V21 V22 V22bis V23
Access: Reg
BBSoftware: TBBS

Kangaroo Korner
Sysop: Stephen de Plater
Phone: (02) 977-2013
GTnet: 302/001
Baud: V21 V22 V22bis B103 B212 HST
Access: Reg LVA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: GTPower

Koala Country
Sysop: Warren Leadbeatter
Phone: (02) 671-5538
GTnet: 302/016
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: GTPower

LOCAL BBS
Sysop: Tony Dodds
Phone: (049) 62-1768
FIDOnet: 3:711/494
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Lodestone BBS
Sysop: Ian McWhirter
Phone: (02) 456-3264
FIDOnet: 3:711/407
Baud: V22 V22bis B103 B212 PEP
Access: Public
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: Opus

M A X's BBS
Sysop: Max
Phone: (02) 412-3280
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DOS: AmigaDOS
BBSoftware: BBS-PC!

Macarthur BBS
Sysop: Peter Degotardi
Phone: (046) 28-1499
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Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

MAD BBS
Sysop: Martin Hopley
Phone: (02) 579-2029
FIDOnet: 3:712/516
Baud: V21 V22 V22bis V23 B212
Access: Public
Hours: Daily: 2200 - 0700
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: QuickBBS

Mail Dispatch
Sysop: Matthew Wood & Andrew Avery
Phone: (02) 969-5861
FIDOnet: 3:711/905
Baud: V21 V22 V22bis V23
Access: Mem Reg
Hours: Daily: 1600 - 0700
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Manly BBS
Sysop: Chris Patten
Phone: (02) 977-6820
Baud: V21 V22 V23
Access: Reg VA
Note: Requires Ultraterm or Palette on C-64

MDL Citadel
Sysop: Lindsay & Karen Gorrie
Phone: (02) 796-7145
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DOS: MS DOS
BBSoftware: Citadel

MEGA Technology TBBS
Sysop: Stan White
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Access: Mem VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: TBBS

Merlin QuickBBS
Sysop: Robert Fairbrother
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Milliway's
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MISSION ONE BBS
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BBSoftware: RemoteAccess

My Other Half
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Access: Reg LVA
Computer: IBM 386 Clone
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BBSoftware: Opus

Newcastle Micro Club BBS
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Access: Mem VA
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BBSoftware: QuickBBS

NOWRA Bulletin Board
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Phone: (044) 21-0722
Baud: V21 V22
Access: Public

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BBSoftware: Opus

Omega Board BBS
Sysop: Paul Speirs & Linda Piltz
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Access: Reg
Computer: IBM AT
DOS: PC DOS
BBSoftware: QuickBBS

Opus Info Under
Sysop: Bill Bolton
Phone: (02) 449-2618
FIDOnet: 3:3/113
Baud: V22 V22bis PEP
Access: File Server
Note: Software support system for FidoNetSysOps - File Request ONLY

Out of This World BBS
Sysop: Adam Todd
Phone: (02) 477-6502
Baud: V21 V22 V22bis
Access: Reg VA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: Searchlight

Outdoors Education
Sysop: Mel Lee
Phone: (046) 58-1881
Baud: V21 V22 V22bis
Access: Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: GTPower

Outwest BBS
Sysop: Greg Smith
Phone: (02) 628-5738
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: Opus

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Sysop: Steve Sharp
Phone: (060) 41-1416
FIDOnet: 3:712/207
Baud: V21 V22 V22bis V23 B103
Access: Public
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: Opus

Paragon Bulletin Board
Sysop: Jennifer Allen
Phone: (02) 597-7477
FIDOnet: 3:712/502
Baud: V21 V22 V22bis V23
Access: Reg VA
BBSoftware: TBBS

PC Users Group - Compaq Board
Sysop: Bruce Edney
Phone: (02) 540-1842
FIDOnet: 3:712/505
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: Compaq
DOS: PC DOS
BBSoftware: Opus

PC Users Group - IBM Board
Sysop: John Clarke
Phone: (02) 724-6813
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT
DOS: PC DOS
BBSoftware: Opus

PC Users Group - Microcomp Board
Sysop: Chris Kelly
Phone: (02) 698-8769
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: IBM PC
DOS: PC DOS
BBSoftware: Opus

Phantom Connection BBS
Sysop: Bob James
Phone: (02) 398-2413
FIDOnet: 3:712/311
Baud: V21 V22 V22bis B103 B212
Access: Public
Hours: Daily: 2200 - 0600
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Poet's Dilemma
Sysop: John Della-Torre
Phone: (02) 804-6412
GTnet: 302/000
Baud: V22 V22bis HST
Access: Mem Reg LVA
Computer: IBM 386 Clone
DOS: PC DOS
BBSoftware: GTPower

Professor Fate's Laboratory
Sysop: Professor Fate
Phone: (02) 682-6828
Baud: V21 V22 V23
Access: Public
Hours: Fri - Sun: 2300 - 0700
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Wildcat

RCOM C-64 BBS
Sysop: Simon Finch
Phone: (02) 667-1930
Baud: V21 V22 V23 V23ORG B103 B212
Access: Reg VA
Computer: C-64
BBSoftware: RCOM
Note: Requires UlatraTerm or Palette on C-64

Realistic Computing BBS
Sysop: Keir Wells
Phone: (066) 55-2388
Baud: V21 V22 V22bis B103 B212
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

Riverina BBS
Sysop: Craig Sinclair
Phone: (069) 67-2277
FIDOnet: 3:712/420
Baud: V21 V22 V22bis V23
Access: Reg LVA
Hours: Daily: 2000 - 0800
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

rti's Pinkboard
Sysop: Laurence Singer
Phone: (02) 264-8313
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

RUNX
Sysop: Mark Webster
Phone: (02) 487-2533
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM 386 Clone
DOS: Xenix

SBA BBS
Sysop: Bob Wilson
Phone: (02) 872-6697
FIDOnet: 3:711/406
Baud: V22bis PEP
Access: Mem LVA
Computer: IBM AT
DOS: PC DOS
BBSoftware: Opus

Sentry
Sysop: Trev Roydhouse
Phone: (02) 428-4687
FIDOnet: 3:711/401
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM AT Clone
BBSoftware: Opus

SENTURA
Sysop: Sir Data Bit
Phone: (02) 790-4096
Baud: V22 V22bis
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Wildcat

Shortwave Possums
Sysop: Patrick Mcdonald
Phone: (02) 651-3055
FIDOnet: 3:713/605
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

Small Business
Sysop: Geoff Bilborough
Phone: (049) 50-4211
FIDOnet: 3:711/491
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS

SMUG Opus
Sysop: Stephen Thompson
Phone: (02) 476-6396
FIDOnet: 3:711/417
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

SOFT-TALK BBS
Sysop: Aldo Ferraro
Phone: (046) 25-2199
Baud: V21 V22 B103 B212
Access: Public
Computer: IBM AT
DOS: MS DOS
BBSoftware: Opus

Software Connection
Sysop: Graeme Nichols
Phone: (02) 975-1006
FIDOnet: 3:714/404
Baud: V21 V22 V22bis V32 B103 B212 HST
Access: Mem Reg VA
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: Opus

Software Tools
Sysop: Bill Bolton
Phone: (02) 449-9477
FIDOnet: 3:711/403
Baud: V22bis V32 PEP
Access: Reg VA
Computer: PS/2
DOS: PC DOS
BBSoftware: Opus

Sorcerer Users Group
Sysop: John Cepak
Phone: (02) 626-8020
FIDOnet: 3:713/607
Baud: V22 V22bis B103
Access: Mem VA
BBSoftware: Opus

Sorcim microS
Sysop: John Caine
Phone: (065) 59-5403
FIDOnet: 3:711/405
Baud: V21 V22 V22bis V23 PEP
Access: Public
Hours: Daily: 2100 - 0800
BBSoftware: Lynx

Stardust BBS
Sysop: Orbit
Phone: (02) 645-3361
Baud: V21 V22 V23 B103 B212
Access: Mem Reg LVA
Computer: C-64
BBSoftware: KBBS

Sydney CAE BBS
Sysop: Geoff Shearsby
Phone: (02) 660-8272
FIDOnet: 3:712/628
Baud: V21 V22 V22bis
Access: Reg LVA
Computer: IBM XT
DOS: PC DOS
BBSoftware: Opus

Sydney Data Exchange
Sysop: Roger Stockburger
Phone: (02) 428-4249
FIDOnet: 3:711/418

MicroGram COMPUTERS

DIGITAL I/O CARD
* 48 Digital I/O lines programmable as input or output.
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* Selectable keyboard interface (connects between keyboard and computer) or serial interface.
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* Standard IBM printer cable 5m long **$30.00**

TOPWARE LAN OPERATING SYSTEM
* Network up to 64 computers.
* 10Mb/sec Ethernet interface cards.
* Supports record locking with multi-user software.
* Supports file locking with single user software.
* Network software users familiar DOS commands.
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* Shares printers anywhere on the network anad allows output redirection with popup utility.
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COMPUTER TERMINAL
* Compatible with PC Term, ANSI and DEC VT220 terminals.
* Uses standard PC monochrome monitor.
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* Suitable for use with Concurrent DOS, PC-MOS/386, MERGE 386, SCO XENIX, UNIX, THEOS, DEC VAX. Price excl. KB & Monitor **$510.00**

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* Plug into motherboard expansion slot and switch on.
* Error code is shown on LED display indicating failure of one 59 possible tests.
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* Digitally store a human voice on disk.
* Playback through your own programs.
* 10 Bit sampling at 16K or 32K bits/sec.
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* Provides an external cursor pad for Laptop computers.
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* Provides stereophonic sound effects for Sierra and compatible games. **$255.00**

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* AT keyboard to PS/2 adapters	**$23.00**
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* Centronics gender changer M/M	**$12.00**
* DB9/DB25 Adapter F/M	**$12.00**
* DB9 gender changer F/F	**$11.00**
* DB9 gender changer M/M	**$11.00**
* High density DB15 F/F	**$14.00**
* High density DB15 M/M	**$14.00**
* High density DB15/DB9 M/F	**$12.00**
* Null Modem DB25 M/F	**$10.00**
* Gender changer DB25 F/F	**$10.00**
* Gender changer DB25 M/M	**$10.00**
* RS232 Loopback tester DB25 M/F	**$20.00**
* RS232 Pin 2/3 reverser DB25 M/F	**$11.00**
* RS232 Surge Protector DB25 M/F	**$20.00**
* RS232 Mini wiring box DB25 M/F	**$25.00**
* RS232 Mini tester DB25 M/F	**$60.00**
* RS232/RS422 Converter DB25 M/F	**$60.00**
* RS232 to Current Loop	**$190.00**
* RS232 to RS422/485	**$190.00**
* Parallel/serial converter	**$105.00**
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* Protect your software from unauthorised copying.
* Consists of an ASIC based hardware device.
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* A two button mouse compatible with the IBM PS/2 computers.
* Tracking speed 500 mm/s
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* A three button bus mouse compatible with the IBM XT/AT computers and compatibles
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PARALLEL PRINTER EXTENDER
* Allows a standard parallel printer to be operated at up to 1200m from the host computer
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Baud: V21 V22 V22bis
Access: Public
Computer: IBM AT Clone
DOS: PC DOS
BBSoftware: Opus

Sydney Information Xchange
Sysop: Lawrence Gould
Phone: (02) 519-6681
GTnet: 302/008
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: GTPower

Syncopation
Sysop: John Morrison
Phone: (02) 907-9603
FIDOnet: 3:712/513.5
Baud: V21 V22 V22bis V23 B212
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Sys-Ex BBS
Sysop: Scot Art
Phone: (02) 356-4148
FIDOnet: 3:712/634
Baud: V21 V22 V22bis
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Tachyonics
Sysop: Richard Lenz
Phone: (02) 438-2682
Baud: V21 V22
Access: Reg VA
BBSoftware: Fido

Talking Heads BBS
Sysop: Jim Caldwell
Phone: (02) 399-7332
Baud: V21 V22 V22bis V23
Hours: Weekdays: 1430 - 0730-
Weekends: 24 Hours
Computer: Amiga500
DOS: AmigaDOS
BBSoftware: BBS-PC!

Tall Tower BBS
Sysop: Charles Yendle
Phone: (02) 632-1128
FIDOnet: 3:711/417.6
Baud: V21 V22 V22bis V32 HST
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Tech Exchange
Sysop: Chris Moran
Phone: (02) 712-2282
FIDOnet: 3:712/708
Baud: V21 V22 V22bis V23 B103 B212 PEP
Access: Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

Technobank
Sysop: Don Cunningham
Phone: (02) 606-9687
FIDOnet: 3:713/611
Baud: V21 V22 V22bis
Access: Mem Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

TeleInfo Australia
Sysop: Ross Delaforce
Phone: (02) 975-1099
FIDOnet: 3:714/407
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: TBBS

Terminal Madness QuickBBS
Sysop: Sean Rodden
Phone: (02) 975-2049
FIDOnet: 3:714/406
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg LVA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Tesseract RCPM+
Sysop: Warren Gerdes
Phone: (02) 476-4313
Baud: V21 V22 V22bis V23 B212
Access: Mem VA
Computer: Collex 850
DOS: CP/M+
BBSoftware: RBBS

Texpac Electronic Magazine
Phone: (02) 319-1009
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem
Computer: TI 99/4A

The Arcade Parlour
Sysop: Greg Cockett
Phone: (02) 498-5947
GTnet: 302/007
Baud: V21 V22 V22bis
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: GTPower

The Black Hole
Sysop: Ken Thompson
Phone: (02) 719-8161
GTnet: 302/003
Baud: V21 V22 V22bis B103 B212 HST
Access: Mem Reg LVA
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: GTPower

The Bush Telegraph
Sysop: Mark Kofahl
Phone: (02) 481-8410
GTnet: 302/012
Baud: V21 V22 V22bis
Access: Mem Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: GTPower

The Cabal Connection
Sysop: Ian Hunter
Phone: (02) 625-6055
FIDOnet: 3:713/606
Baud: V21 V22 V22bis V23 B212 PEP
Access: Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

The City BBS
Sysop: John Dawson
Phone: (02) 456-4505
FIDOnet: 3:711/410
Baud: V21 V22 V22bis PEP
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

The Final Program
Sysop: Reg Langford
Phone: (02) 548-1340
FIDOnet: 3:712/211
Baud: V22 V22bis B103
Access: Reg
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: RemoteAccess

The FORUM BBS
Sysop: Simon Foster
Phone: (02) 522-9472
FIDOnet: 3:712/265
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg LVA
Hours: Daily: 2300 - 0600
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

The Lost Tavern
Sysop: Sean Murphy
Phone: (02) 938-6836
FIDOnet: 3:714/902
Baud: V21 V22 V22bis V23
Computer: IBM PC/XT Clone
DOS: PC DOS
BBSoftware: Opus

The Oops BBS
Sysop: Ian Object
Phone: (02) 626-5403
FIDOnet: 3:713/614
Baud: V21 V22 V22bis V23
Access: Mem VA
BBSoftware: Opus

The Red Dragon Inn
Sysop: Zorro & The Draftsman
Phone: (02) 708-6024
Baud: V21 V22
Access: Public
Computer: C-64
BBSoftware: KBBS

The Runway
Sysop: Colin Lean
Phone: (02) 569-5130
FIDOnet: 3:712/506
Baud: V22bis B103 B212 PEP
Access: Reg LVA
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

The Sanctuary
Sysop: Mark Fyvie
Phone: (02) 399-7000
FIDOnet: 3:712/321
Baud: V21 V22 V22bis B103 B212
Access: Mem Reg LVA
Computer: IBM 386sx Clone
DOS: MS DOS
BBSoftware: RemoteAccess

The Twilight Zone
Sysop: The Mystic Machine
Phone: (065) 72-3970
Baud: V21 V22 V23
Access: Reg LVA
Hours: Weekdays: 2100 - 0600-
Weekends: 24 Hours
Computer: Apple //e
DOS: ProDOS
BBSoftware: GBBS Pro

The WEB
Sysop: Dave Chapman
Phone: (02) 570-9056
Baud: V21 V22 V22bis
BBSoftware: QuickBBS

Triops BBS
Sysop: Pdisk
Phone: (063) 62-9715
Baud: V21 V22 V23
Access: Public
Hours: Daily: 2100 - 1800
Computer: C-128
BBSoftware: KBBS

Ultimate-10 : The Ultimate BBS
Sysop: Ben Woo
Phone: (02) 484-4004
FIDOnet: 3:711/802
Baud: V21 V22 V22bis B103 B212
Access: Reg LVA
Computer: Arche Rival 386sx
DOS: MS DOS
BBSoftware: Opus

Wollongong Amiga BBS
Sysop: Peter Nicholson
Phone: (042) 27-3927
Baud: V21 V22 V22bis
Access: Reg VA
Hours: Weekdays: 1730 - 0800-
Weekends: 24 Hours
Computer: Amiga 2000
DOS: AmigaDOS
BBSoftware: Atredes BBS

YABB
Sysop: Jonathan Chin
Phone: (02) 804-6837
FIDOnet: 3:711/803
Baud: V21 V22 V22bis V23 B103
Access: Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: TBBS

Zeta MINIX users
Sysop: Nick Andrew
Phone: (02) 627-4177
FIDOnet: 3:713/602
Baud: V22 V22bis B103 B212
Access: Reg VA
Computer: TRS-80

QEDSME SmartEditors(tm) for Communications V1.00 900601

In a recent issue of *'Your Computer'*, one of the feature writers expressed the desire to take advantage of the new color printers to color phrases such as *'green with envy'* in *green* ink. The editor wasn't impressed and the article was printed in black / white. The feature writer observed that this proposal would increase the workload for the proof reader, who would have to check both the words / colors. Of course, a suitable pretty printing program would setup the colors automatically. Below is a screen dump of an unfamiliar script language. Such scripts are often published in computer magazines. The different keywords / parameters / punctuation are shown in different colors / fonts / underlining on the screen / on the page.

```
Insert = QEDSUP Editor sample.RUN Mode show =:ln 11 cl 6 pg11
; 900531etp sample SuperComm 2 script with some deliberate errors...
file a:temp.run
File A:\pathname\subdirectory\SAMPLE.RUN:                          7002
cls
flush
fk 1 some string
fk 3 another string
trace off
fk b login                                                         7022
setlOop 10
:outer
dial austpac
1Help  2Locate  3Search 4Replace 5SavQuit 6InsLn 7DelLn 8Mode 9OFT 0QuitNosave
Maybe PinPoint  1  2 on
Maybe PinPoint  1  4 find
***fk n  ( define Function Key )***
Maybe PinPoint  1  6 switch
Maybe PinPoint  4  7 setloop
Maybe (setloop)
***DIAL name***
```

Errors, where detected are shown in *red*. Of course the main point of showing the syntax in different colors , is to fix errors. If errors are more easily fixed at Edit-Time, then this reduces the need to pretty print the script on any Colour / Monochrome printer, doesn't it ?

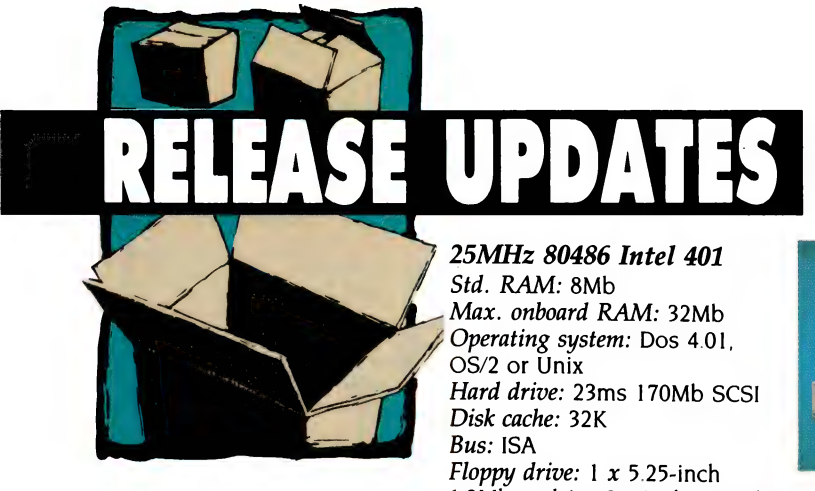
Below is a partial list of other pretty-printing editors ...

VOLUME/ PROGRAM	Descriptions	%	Author#		Price
QEDSME_5	SmartEditors for Communications #1		(_*A____)	set	$ 95.00
QEDBOY	SmEd for Boyan	75	(PCSIG1206)		
QEDBRN	SmEd for The Brain	75	(PCSIG0752)		
QEDGTN	SmEd for GT-Comm	75	(PCSIG0782)		
QEDSME_6	SmartEditors for Communications #2		(_*A____)	set	$ 95.00
QEDPRO	SmEd for ProComm	75	(PCSIG0499)		
QEDQMO	SmEd for QModem	75	(PCSIG0310)		
QEDUNI	SmEd for UniCom	75	(_____)		
QEDSME_7	SmartEditors for Communications #3		(_*A____)	set	$ 125.00
QEDPCT	SmEd for PC-Tools	75	(CentralPointSoftware)		
QEDSOF	SmEd for Softerm	75	(Softronics)		
QEDITE	SmEd for IT Ideal Terminal	75	(PCSIG0679)		
QEDSME_8	SmartEditors for Communications #4		(_*A____)	set	$ 95.00
QEDSUP	SmEd for SuperComm 2	75	(OperatingSystemsResearch)		
QED___	SmEd for ?????				
QED___	SmEd for ?????		are there more ???		

The prices quoted above are to register *QEDSME* products only. You still need to register / buy the target shareware / commercial programs as well.

The *QEDSME* SmartEditors(tm) are based on QED.PAS of PC-BLUE 0261.

Try This! PO Box 363 Mona Vale NSW 2103 Australia
fax: +61-2-979-5632



RELEASE UPDATES

Desktop Machines

Amstrad Update

Amstrad
Ph: (02) 360 3144;
Fax: (02) 360 3211

PC2386 20MHz 80386
Std. RAM: 4Mb
Max. onboard RAM: 16Mb
Operating system: Dos 4.01 std
Hard drive: 65Mb
Disk cache: 64K
Bus: ISA
Floppy drive: 1 *x* 3.5-inch 1.44Mb
Serial ports: 1
Parallel ports: 1
Half-height devices: 1 internal, 1 external
Other I/O:
Microsoft-compatible mouse
Expansion slots: 4 16-bit, 1 8-bit,
Display: VGA
Keyboard: 101 keys
Other: Dos, Windows/386, MS Word 5, MS Excel included. Free training course.
Warranty: 12-months on-site.
Price (rrp): $3999 with mono monitor.

Intel Update

Tech Pacific
Ph: (02) 697 7111; Fax: (02) 662 8370

25MHz 80486 Intel 401
Std. RAM: 8Mb
Max. onboard RAM: 32Mb
Operating system: Dos 4.01, OS/2 or Unix
Hard drive: 23ms 170Mb SCSI
Disk cache: 32K
Bus: ISA
Floppy drive: 1 *x* 5.25-inch 1.2Mb and 1 *x* 3.5-inch 1.44Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: 4 internal; 4 external access
Expansion slots: One 8-bit, three 16-bit, four 32-bit (all free)
Power supply: 304 watts
Display: VGA optional
Keyboard: 101 keys
Other: Optional 150Mb SCSI tape drive
Warranty: 12 months
Price (rrp): $23,093 with no hard disk, $25,089 with 80Mb hard disk

Tech Pacific
Ph: (02) 697 7111; Fax: (02) 662 8370

16MHz 80386SX Intel 300SX
Std. RAM: 2Mb
Max. onboard RAM: 4Mb
Operating system: Dos 4.01, OS/2 or Unix
Hard drive: 29ms 40Mb
Disk cache: No
Bus: ISA
Floppy drive: 1 *x* 3.5-inch 1.44Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: 2 internal; 2 external access
Expansion slots: Four 16-bit (all free)
Power supply: 145 watts
Display: VGA adaptor
Keyboard: 101 keys
Other: Optional 150Mb SCSI tape drive
Warranty: 12 months
Price (rrp): $5324 for base model, $6605 with 40Mb disk drive

Olivetti Update

Olivetti
Ph: (02) 748 2600;

Fax: (02) 748 3390

16MHz 80286 M290S
Std. RAM: 1Mb
Max. onboard RAM: 5Mb
Operating system: Dos 4.0
Hard drive: 40Mb
Disk cache:
Bus: ISA
Floppy drive: 1 *x* 5.25-inch 1.2Mb
Serial ports: 1
Parallel ports: 1
Half-height devices: 3
Other I/O: Mouse
Expansion slots: 3 full length (all free)
Display: VGA
Keyboard: PS/2 compatible
Other:
Warranty: 12-months
Price (rrp): $5354

Samsung Update

Samsung Electronics
Ph: (02) 638 5200;
Fax: (02) 684 4084

SD610 16MHz 80286
Std. RAM: 1Mb
Max. onboard RAM: 5Mb
Operating system: Dos 3.30
Hard drive: Optional 40Mb IDE
Disk cache: No
Bus: ISA
Floppy drive: 1 *x* 5.25inch 1.2Mb, 3.5 inch 1.44Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: 1 internal, 1 external
Expansion slots: 5 long (4 free)
Power supply: 135W
Display: VGA
Keyboard: 101 keys
Other: EMS 4.0 support
Warranty: 12-months
Price (rrp): $2299

Samsung Electronics
Ph: (02) 638 5200;
Fax: (02) 684 4084

SD700 16MHz 80386SX
Std. RAM: 2Mb
Max. onboard RAM: 8Mb
Operating system: Dos 3.30
Hard drive: Optional 40Mb IDE
Disk cache: 64K
Bus: ISA
Floppy drive: 1 *x* 5.25 inch 1.2Mb, 3.5 inch 1.44Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: 2 external, 1 internal
Expansion slots: 5 full-size (4 free)
Power supply: 135W
Display: VGA
Keyboard: 101 keys
Other: EMS 4.0 support
Warranty: 12-months
Price (rrp): $2999

Samsung Electronics
Ph: (02) 638 5200;
Fax: (02) 684 4084

SD820 25MHz 80386
Std. RAM: 4Mb
Max. onboard RAM: 8Mb
Operating system: Dos 3.30

Hard drive: Optional
Disk cache: 64K
Bus: ISA
Floppy drive: 1 x 5.25inch 1.2Mb, 3.5 inch 1.44Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: 1 internal, 2 external
Expansion slots: 5 16 bit, 1 8 bit, 2 32 bit
Power supply: 135W
Display: VGA
Keyboard: 101 keys
Warranty: 12-months
Price (rrp): $6999

Samsung Electronics

Ph: (02) 638 5200;
Fax: (02) 684 4084

SD830 33MHz 80386
Std. RAM: 4Mb
Max. onboard RAM: 8Mb
Operating system: Dos 3.30
Hard drive: Optional
Disk cache: 64K
Bus: ISA
Floppy drive: 1 x 5.25inch 1.2Mb, 3.5 inch 1.44Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: 1 3.5 inch, 2 5.25 inch accessible, 1 5.25 inch full height internal
Expansion slots: 5 16 bit, 1 8 bit, 2 32 bit
Power supply: 135W
Display: VGA
Keyboard: 101 keys
Other: 64Kb Cache
Warranty: 12-months
Price (rrp): $8990

The Great Escape

Ph: (02) 693 2022;
Fax: (02) 693 2918

8/16MHz 80386 model 3216
Std. RAM: 1Mb
Max. onboard RAM: 6Mb
Operating system: Enhanced Dos 3.3
Hard drive: 28ms 40Mb
Disk cache: No
Bus: ISA
Floppy drive: 1 x 5.25-inch 1.2Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: 1 internal; 4 external access

Expansion slots: 3 8-bit, 6 16-bit (2 8-bit and 5 16-bit free)
Power supply: 220 watts
Display: 12-inch VGA
Keyboard: 102 keys
Other: Password security; system keylock
Warranty: 12-months
Price (rrp): $4925

The Great Escape

Ph: (02) 693 2022;
Fax: (02) 693 2918

25MHz 800386 model WY-3225
Std. RAM: 4Mb
Max. onboard RAM: 16Mb
Operating system: Enhanced Dos 4.01; OS/2, Unix
Hard drive: 17ms 150Mb ESDI; 300Mb drive optional
Disk cache: 64K
Bus: ISA
Floppy drive: 1 x 5.25-inch 1.2Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: 1 internal; 4 external access
Other I/O: Opitonal 150 or 300Mb tape drive
Expansion slots: 3 8-bit, 8 16-bit, (2 8-bit, 4 16-bit free)
Power supply: 220 watts
Display: 14-inch VGA monochrome; optional 12- and 19-inch (1280 x 1024) VGA color; 15-inch VGA mono (1280 x 800)
Keyboard: 102 keys
Other: Optional 8-user multi-port controller card
Warranty: 12-months
Price (rrp): $13,220

Wyse Update

The Great Escape

Ph: (02) 693 2022;
Fax: (02) 693 2918

12.5MHz 80286 model WY-212 diskless workstation
Std. RAM: 1Mb
Max. onboard RAM: 1Mb
Operating system: according to server
Hard drive: No
Disk cache: No
Bus: ISA
Floppy drive: No
Serial ports: 2
Parallel ports: 1
Expansion slots: Optional 16-bit for network interface card
Power supply: 84 watts
Display: 14-inch VGA, 720 x 348
Keyboard: 102 keys
Other: Display can be configured from 25 lines by 40 columns to 44 lines by 132 columns; hardware-assisted panning, zooming and split screen
Warranty: 12-months
Price (rrp): $3649

Laptops & Portables

Amstrad Update

Amstrad Pty Ltd

Ph: (02) 360 3144;
Fax: (02) 360 3211

16 MHz ALT-286 and ALT-386SX
Std. RAM: 1Mb
Max. onboard RAM: 4Mb
Operating system: Dos 3.30
Hard drive: 28ms 20Mb or 25ms 40Mb
Bus: ISA
Floppy drive: 1 x 3.5-inch 1.44Mb
Serial ports: 2
Parallel ports: 1
Half-height devices: n/a
Other I/O: External keyboard
Expansion slots: 3 16-bit half length
Display: VGA backlit LCD plus monitor port
Keyboard: 85 keys
Other: Maths co-processor socket
Weight: 7kg
Power: Battery (2 hours)
Warranty: 12 months
Price (rrp): $3999 ('286); $4999 ('386SX)

Panasonic Update

Panasonic Industrial Products

Ph: (02) 886 0200;
Fax: (02) 887 4184

8MHz V20 model CF-150B XT notebook
Std. RAM: 640K
Max. RAM: 1.6Mb
Operating system: Dos 3.3 in ROM
Hard drive: No

Disk cache: No
Bus: ISA
Floppy drive: 1 x 3.5-inch 720K
Serial ports: 1
Parallel ports: 1
Expansion slots: 1 8-bit, 1 RAM card (both free)
Display: VGA, backlit supertwist LCD
Keyboard: 84
Weight: 2.8kg (without battery)
Power: Mains/battery
Warranty: 12 months
Price (rrp): $1799

Panasonic Industrial Products
Ph: (02) 886 0200;
Fax: (02) 887 4184
8/20MHz 80386 model CF-350HD portable
Std. RAM: 1Mb
Max. RAM: 4Mb
Operating system: Dos 3.3
Hard drive: 28ms 40Mb
Disk cache: No
Bus: ISA
Floppy drive: 1 x 3.5-inch 1.44Mb
Serial ports: 2
Parallel ports: 1
Other I/O: External monitor port
Expansion slots: 1 16-bit, 2 RAM card (all free)
Display: VGA, backlit supertwist LCD, black on white with inverse switch
Keyboard: 84 plus keypad
Weight: 8.6kg (with internal AC power pack)
Power: Mains/battery
Warranty: 12 months
Price (rrp): $10,900

Sanyo Update

Sanyo Office Machines
Ph: (02) 929 4644;
Fax: (02) 935 0248
16 MHz 80286 MBC-17LT
Std. RAM: 1Mb
Max. onboard RAM: 3Mb
Operating system: Dos 3.3
Hard drive: 20 or 40Mb optional
Disk cache: No
Bus: ISA
Floppy drive: 1 x 1 3.5-inch 1.44Mb
Serial ports: 1
Parallel ports: 1
Half-height devices: n/a
Other I/O: External keypad/keyboard
Expansion slots: 2 10inch length
Display: EGA backlit LCD; external RGB port
Keyboard: 86 keys
Weight: 8.2kg
Power: AC mains
Warranty: 3 months
Price (rrp): $6600

Dot Matrix Printers

Oki Upate

Memorex Telex
Ph: (02) 805 5805;
Fax: (02) 805 0429
9-pin Microline 1320
Rated speed (10cpi): 300cps High Speed; 63cps NLQ
Rated noise (working): 57dBa (52dBa in quiet mode)
Carriage width: 11-inch
Dots/character: 7 x 7 High Speed; 17 x 7 NLQ
Pitch: 10, 12, 17, 20cpi
Resident typefaces: 4
Graphics resolution: 240 x 216
Color: No
Data buffer: 12K
Weight: 7.3kg
Warranty: 12 months
Price (rrp): $799; $999 for model P1321 with 15-inch carriage

Inkjet Printers

Diconix Upate

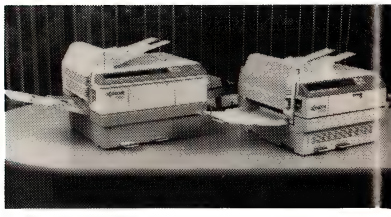
Kodak Copy
Ph: (03) 353 2010;
Fax: (02) 353 2016
12-nozzle Diconix 150 Plus
Rated speed (10cpi): 145cps Draft; 44cps NLQ
Compatibility: Epson FX, IBM ProPrinter; Macintosh (M150)
Printing method: Drop on demand
Rated noise (working): 45dBa
Ink colors: 4
Printing colors: 7
Carriage width: 9-inch
Dots/character: 18 x 24
Pitch: 10, 12cpi
Resident typefaces: ASCII 152, graphic symbols
Graphics resolution: 192 x 192
Data buffer: 2000 characters
Other: Battery/mains powered
Warranty: 12 months
Price (rrp): $930

Laser Printers

Dataproducts Update

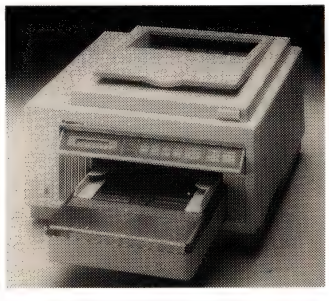
Dataproducts Corporation
Ph: (02) 451 3533;
Fax: (02) 451 5138
24ppm Dataproducts LZR 2450 laser
Rated noise (working): 55dBa operating, 48 dBa idle
Compatibility: HP LaserJet IID+
Paper size: A4
Input/output trays: 750/550 sheets
Engine: LED
Resolution: 300 x 300dpi
Resident typefaces: 72
PostScript: No
Other emulations: Diablo 630 ECS, Tektronix 4010/4014, DEC LN03 Plus
Data buffer: 4Mb + 3.5 inch floppy drive
Buffer expandable to: 40Mb hard disk + 2nd floppy drive
Other: RS-232, RS-422, Centronics interfaces
Warranty: 12 months
Price (rrp): 22,995

Kyocera Update

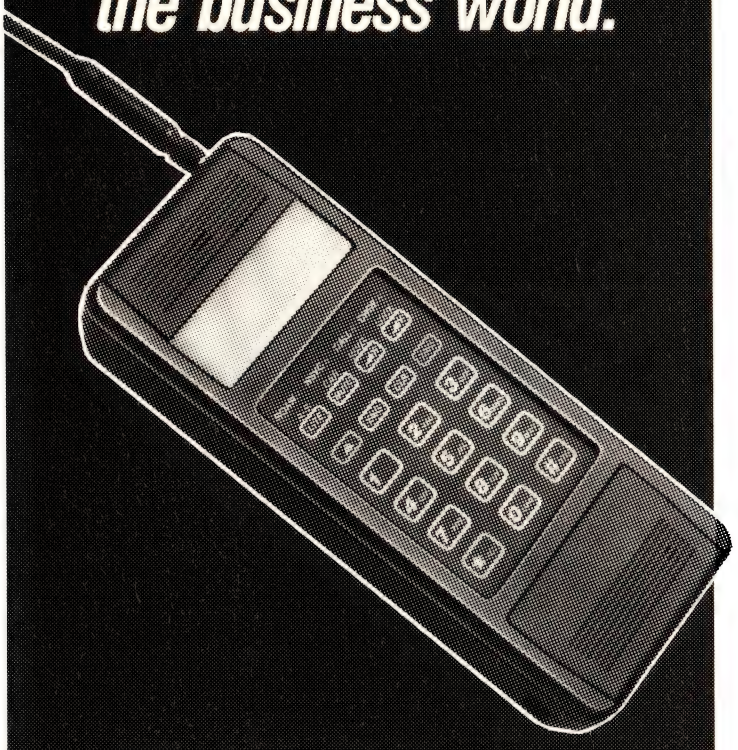


Kyocera Electronics
Ph: (02) 417 8977;
Fax: (02) 417 7504
18ppm Kyocera F-1800
Rated noise (working): 52dBa
Compatibility: LaserJet II, Epson FX, Diablo 630, Qume Sprint; DEC LN03; Wang VS
Paper size: A4, B5
Input/output trays: 250/(200 face up, 250 face down) sheets; model FX-3300 has 2 input trays; optional 1000 sheet input bin
Resolution: 300 x 300dpi
Resident typefaces: 79 plus 3 scalable fonts and 39 barcode formats
PostScript: No
Data buffer: 1Mb
Buffer expandable to: 5Mb
Warranty: 12-months on-site
Price (rrp): $7850; FX-3300 $9750

Panasonic Update



The Mobile Phone. It's revolutionized the business world.



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JWTRETAIL4062P0021

Panasonic Industrial Products
Ph: (02) 886 0200;
Fax: (02) 887 4184

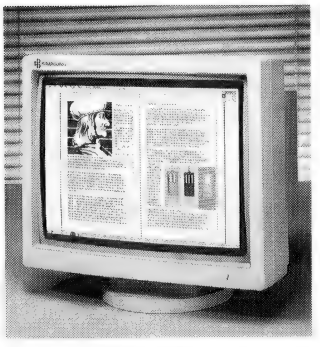
8ppm Panasonic KX-P4420
Rated noise (working): 53dBa
Paper size: A4, A5
Input/output trays: 250/150 sheets
Engine: Canon SX
Resolution: 300 *x* 300dpi
Resident typefaces: 22 (11 portrait, 11 landscape), plus 25 symbol fonts
PostScript: No
Other emulations: LaserJet II, Epson, Diablo 630
Data buffer: 512K
Buffer expandable to: 4.5Mb
Other: Two font cartridge slots
Warranty: 12 months
Price (rrp): $2995; $3995 for the 11ppm model KX-PP4450 with dual input trays

Monitors

Samsung Update

Samsung Electronics
Ph: (02) 638 5200;
Fax: (02) 684 4084

19-inch MU9511
Compatibility: IBM
Graphics: CGA, MGA, EGA, PGA and VGA
Max. Resolution: 1280 *x* 1024
Screen type: 110 degree non-glare
Horizontal frequency: 66KHz
Vertical frequency: 63Hz
Input: ECL
Dot pitch: 1280 x 1024mm
Special card: Yes
Other: Tilt/swivel base
Warranty: 12 months
Price: $11,060 monitor plus $1260 for video card



Samsung Electronics
Ph: (02) 638 5200;
Fax: (02) 684 4084

15-inch portrait display MP5671
Compatibility: IBM/Mac

Portfolio Reporter

```
28/5/90 ──────── P O R T F O L I O   R E P O R T E R ──────── (F2)
        Version 1.5 Demonstration for Mr V.M. Investor (Joint Assets)

   UPDATE INFORMATION                    INFORMATION SCREENS

A. Create/Edit Asset Details             I. Individual asset
B. New Asset transactions
C. New Income/Income Reinvestment        J. Shares and Listed Trusts only
D. Certificate movements                 K. Non-share assets
E. Update prices                         L. All except Real Estate (Home)
                                         M. All assets
                                         N. Geared assets only
F. Backup Files
P. Printed Reports                       O. Maturity Dates
U. Utilities                             R. Target Prices
X. Quit                                  S. Portfolio Summaries
```

My Computer Company
Phone: (02) 52 5781
Price: $295
$540 with Dowchart

Peter Deegan's Portfolio Reporter is for investors with a basic knowledge of personal investments, Dos 2.x or higher and 384K of free memory. It is intended to help users keep track of letters, dividend notices, contract notes and the like relating to investments in order to make things easier at tax time. It is Australian written so that such things as 'franked dividends with imputation credits', 'taxable, tax-free and tax deferred income' are handled appropriately. The software maintains a report on each asset in the register covering capital and asset transactions, income and method of payment, deductions, price, company address, certificates held, maturity date and high and low target prices. Reports are available to show total units held, latest prices and current value, cost and percentage change from cost and percentage of the total portfolio. Dowchart is a well-known charting program for updating asset prices from public databases.

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* Includes DOS template	
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DEALER ENQUIRIES WELCOME

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Graphics: CGA, MGA, EGA, PGA and VGA
Max. Resolution: 1024 x 512 non-interlaced; 1-24 x 800 interlaced
Screen type: Anti-glare
Horizontal frequency: 62.75KHz
Vertical frequency: 60Hz
Analog/TTL: No/Yes (ECL optional)
Dot pitch: 1006 x 1048mm
Special card: CPC21A (PC); CMT21M (Mac)
Warranty: 12 months
Price: $729 monitor plus $825 for video card

Database

Superbase 4

Stein Systems
Phone: (02) 413 2777
Price: $1195

Designed for use with Microsoft Windows, Superbase 4 is a database manager capable of handling over 1000 million records per file, each with up to 999 indexes. Freeform text as well as graphics images can be kept in the database, and the full-functionality of Windows cut-and-paste is available for use with Excel, Word for Windows and PageMaker. The Forms Designer module allows users to develop input and output screens using such Window features as check boxes, buttons, color, fonts and graphics. Superbase 4 supports Dynamic Link Libraries (DDLs) and Dynamic Data Exchange (DDE). Graphics Server, developed from the well-known dBase graphics tool, dGE, is an add-on DDL that provides 80 high-resolution graphing functions for developers: data can be extracted from record, file or database level and displayed in pie and bar charts (2D and 3D), line graphs and a range of other styles.

Personal Manager

Active Life

Solutions
Phone: (075) 39 5422
Fax: (075) 39 3482
Price: $245

Solutions has released Active Life, a personal information manager for users of Windows 2 and 3. The program features task scheduling integrated with the appointment calendar, which automatically generates a daily schedule for use in time budgeting. Multiple alarms, week-at-a-glance, pop-up calendars and historic archiving are also included. There is a companion text and graphics database, Notebook, with auto-sorting, title and text search, auto-dial and a built-in wordprocessor; support is provided for scanned images or graphics from other Windows-based applications, as well as ASCII text files and Windows Cardfile files.

CD-ROM Software

The Shareware Carousel

Light Years Ahead
Phone: (02) 477 6666
Fax: (02) 477 6655
Price: $395

The Shareware Carousel from US-based Alde Publishing has over 450Mb of Dos-based programs and an additional 150Mb for Macintosh, Amiga and other Commodore PCs. Mastered in the standard ISO9660 format, the compact disk includes a range of desktop publishing, educational, wordprocessing and financial accounting Shareware compressed with ZIP. Also included are over 1000 graphics files in GIF, PIC and MAC formats. There is a single master directory in ASCII and 25 main sub-directories. Transfer of programs from the CD to a hard disk is facilitated with a simple Pick command.

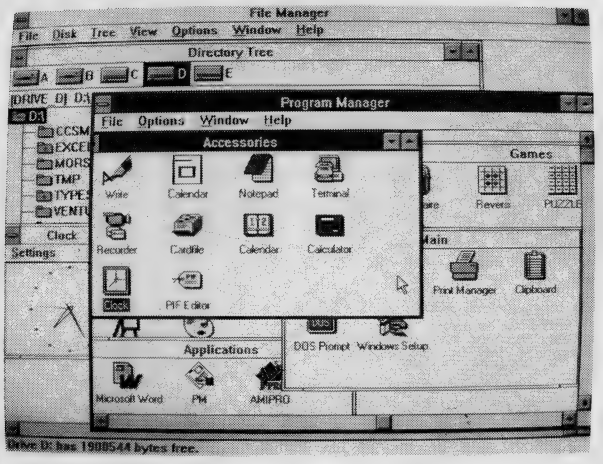
Security

SmartLock

Moore International
Phone: (09) 381 6588
Fax: (09) 381 1842
Price: $80 plus tax each
$70 plus tax each for 10 or more
$100 evaluation kit (refundable if returned in 30 days)

SmartLock is a Western Australian developed software security system for IBM compatibles. The system comprises a physical device which is attached to the computer's parallel port and a software suite. The software is

Microsoft Windows 3.0



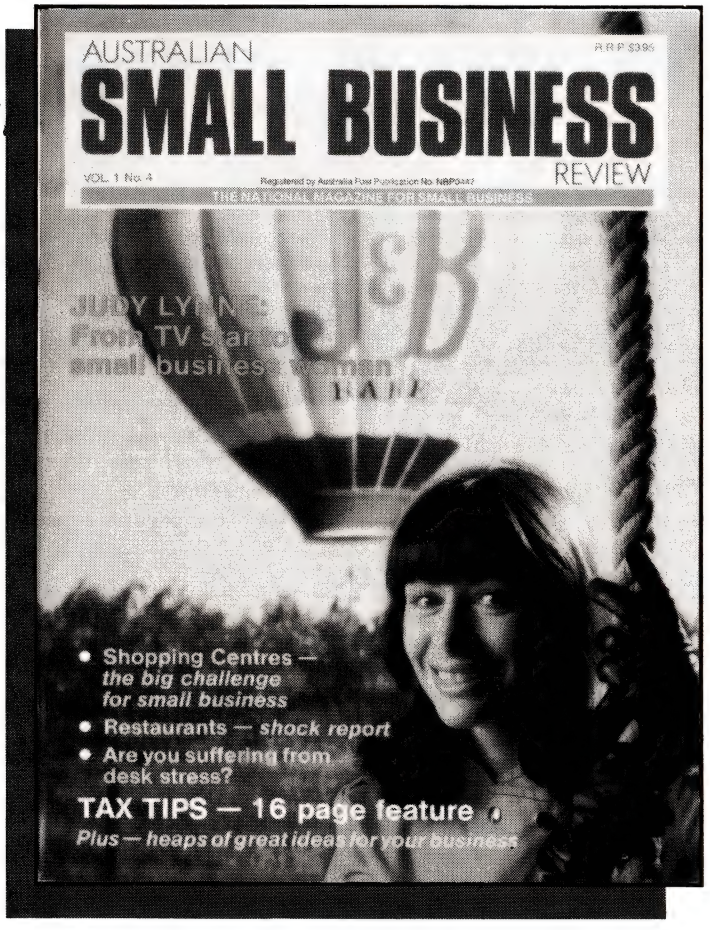
Reflecting the increasing importance of Microsoft Windows and Windows applications, John Hepworth will be contributing a new column on Windows – the first will appear in our September issue. We would like to hear from readers about their own experiences with Windows 3, particularly of any application or hardware 'clashes' you may have experienced and any 'workarounds' you may have discovered.

Microsoft Australia
Phone: (02) 452 0288
Fax: (02) 452 4387
Price: $245
$105 upgrade; $75 for Communique members

Microsoft's version 3.0 of its Windows environment has new long-awaited features, including better support for '286 and '386 protected modes, direct access to up to 16Mb of physical memory on '386 machines, and support for virtual memory on these machines. The user interface is greatly improved, with an icon-based program launcher, the Program Manager. A File Manager also allows access to files and directories by name, as in Dos and previous versions of Windows. The usual brace of accessories is provided, with some notable changes. Windows Paint has been replaced with Paintbrush, a color graphics editor. A macro recorder has also been included to record and reproduce strings of key presses, and the setup program allows changes to be made to the hardware configuration without having to re-install Windows from scratch. Support is also provided for four serial (COM) ports, rather than the previous two. Most existing Windows packages will operate under Windows 3.0 in real mode, and some will also run in the Standard and Enhanced modes, which take advantage of the extended memory in '286 and '386 systems, respectively. However, Microsoft says that Windows 3.0-compatible versions of applications should be available soon after the launch of Windows. At the same time, Microsoft announced the Windows to OS/2 Software Migration Kit, which enables developers to port software to the Presentation Manager environment. 'Using the tool, developers can usually convert a Windows application to an OS/2 application in a matter of days,' says Microsoft Australia's managing director, Daniel Petre.

The kit will be supplied as part of the OS/2 Development Kit, and in an upcoming Windows Software Development kit later this year.

ATTENTION ALL SMALL BUSINESS OWNERS



Running a small business, at times, can be a bit like walking through a mine field. With government regulations, bureaucrats, unions, taxes, you name it. Sometimes it feels as though everyone is out to get you! Let's face it, whilst the rewards are great for those who make it, you need all the help you can get. AUSTRALIAN SMALL BUSINESS REVIEW is cram packed with useful information and practical ideas, that can help you with your small business. Whether you're a battle scarred veteran or a new recruit, you'll find heaps of helpful hints and inspiration to soldier on.

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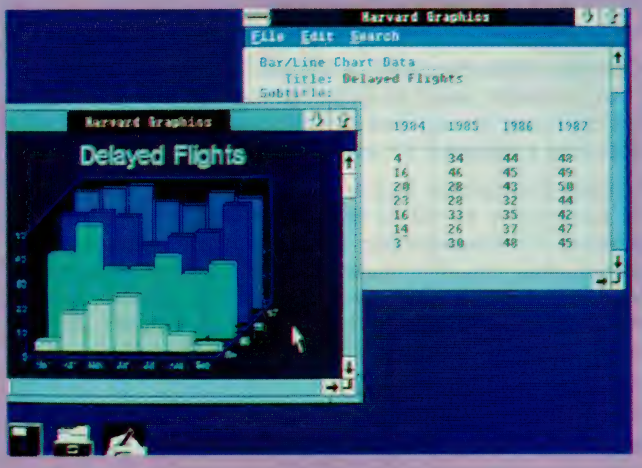
Harvard Graphics 2.3



Software Publishing
Phone: (02) 418 7188
Fax: (02) 452 4387
Price: $795
Free upgrade for purchases after May 17 and $135 for other users

$65 upgrade for users with the Draw Partner add-on

Software Publishing Corporation (SPC) has announced an upgrade to its big-selling presentation graphics package, Harvard Graphics, over two years after the previous release, 2.12. Most notable of the new features are the integration of the drawing module Draw Partner (previously available separately) and HyperShow, a slide show manager. Also new is Chart Gallery which supplies pre-designed charts and color schemes which can be used as templates. Hypershow lets users define up to 10 Buttons per slide – each Button jumps the slide show to a different pre-defined slide for background or additional information; this facility can also be used to modify the order of the presentation 'on the fly'. Users who register will be given a run-time version of the software so slide shows can be presented from systems that do not have Harvard Graphics installed. Draw Partner facilitates freehand drawing, circular text, rotation and flipping, zoomed, skewed and perspective views; charts created with Harvard Graphics and modified with Draw Partner, can now be edited with Harvard Graphics. Another enhancement is the inclusion of a Dos shell (using only 15K) that allows access to up to seven outside applications. There is a new 475-image library of color-coded symbols and support has been added for Excel and the Autographix Slide system. Memory use has been dropped to 420K and support for a wide range of printers, plotters and input devices has been added.

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Have you ever written your own program only to find that they did not work? Help is now at hand with this book. Applicable to all dialects of the BASIC language. BP-169 $6.50

How to Get Your Electronic Projects Working
The aim of this book is to help the reader overcome problems by indicating how and where to start looking for many of the common faults that can occur when building up projects. BP-110 $8.50

Audio Amplifier Fault Finding Chart
This chart will help the reader to trace most common faults that might occur in audio amplifiers. BP-120 $4.00

The Pre-Computer Book
Aimed at the absolute beginner with no knowledge of computing. An entirely non-technical discussion on computer bits and pieces and programming. BP-115 $8.50

A Concise Introduction to GEM
This book explains to the beginner all he or she is likely to need to know about GEM. BP-230 $14.00

An Introduction to BASIC Programming Technique
This book includes a program library and finishes with a number of appendices which include a glossary and test questions and answers of each chapter. BP-86 $6.50

Computer Hobbyists Handbook
Provides a single, quick reference source to a cornucopia of data and information that the computer hobbyist is likely to find useful. BP-251 $18.00

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All you basically need to know, presented in a short and practical form, to use one of the most popular of word-processing packages. BP-262 $13.00

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This book aims to fill in the background to the microprocessor by constructing typical computer circuits in discreet logic and it is hoped that this will form a useful introduction to devices such as adders, stores etc as well as a general source book of logic circuits. BP-78 $6.00

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Starts by designing a small computer and because of its simplicity and logical structure, the language is easy to learn and understand. BP-72 $6.00

An Introduction to Computer Communications
Provides details of the various types of modem and their suitability for specific applications. Also includes information on common networking systems and RTTY. BP-177 $6.00

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This guide is written with the non-expert, busy person in mind and, as such, it has an underlying structure based on "what you need to know first, appears first". BP-232 $11.00

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This book shows you how to make the most of the Atari ST musically, with simple add-on circuits and program routines. BPI-246 $18.00

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This book is a guide to C programming, C statements are introduced and explained with the help of simple, but completely working programs. BP-258 $16.00

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With the help of this small book it is hoped that you will be able to learn the operating system of UNIX in the shortest and most effective way. BP-259 $12.00

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Covers such items as monitors, printers, disc drives, cassette recorders, modems, etc explaining what they are, how to use them and the various types and standards. BP-170 $6.50

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This book covers both the command-line mode of processing and the Presentation Manager of OS/2 Standard edition 1.1 as implemented by IBM and Microsoft. BP-260 $12.00

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initially used to encode keys into an application under development so that without the key or the device, the application will not run. There are three levels of password security for the developer: user identification, password and dataword. If the SmartLock or its software is tampered with, the 128-bit dataword is erased and the application won't run. The security system is transparent to users. There is an address switching facility that allows a system to run up to 5 SmartLock applications at once.

BlockIt

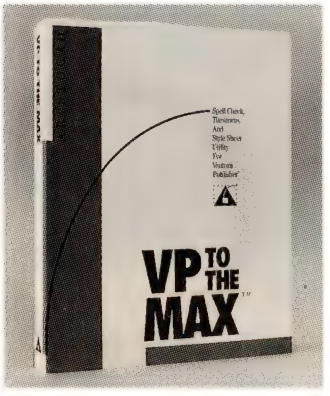
Robust Software
Phone: (03) 629 2754
Fax: (03) 614 5694
Price: $295 each
$179 each for 2 to 10 copies

Developed in Melbourne by Robust, BlockIt Personal Computer Security is a menu-driven software-only security system with extensive password regulations and update parameters. It offers a detailed audit trail, protection against viruses and access to data on a 'right to know' basis. There is extensive control for access to both the physical and logical drive and passwords used can be the same as those for other applications on the system. BlockIt also provides a screen-saver and software keyboard lock with message storage facilities. Robust is also developing the package for OS/2, Windows, the Mac and Xenix.

Ventura accessories

VP to the Max

Logo Distribution



Phone: (02) 819 6811
Fax: (02) 819 6930
Price: $399

Aristocad's VP to the Max gives Ventura users a spell checker, thesaurus, search and replace functions and style sheet viewing without exiting the program. Spell Check is based on the Merriam-Webster dictionary with added specialist supplements; checking features include capitalisation, contractions, prefixes and suffixes and querying the use of the same word twice (as in 'had had'). The Thesaurus not only displays synonyms, but their definitions, too. The Search and Replace function for text works across entire chapters. The Style Sheet Viewer is used to check format elements such as page size, alignment, font characteristics, spacing and margin settings from within the application.

Drive Cleaner

HeadMax

Westinghouse
Phone: (03) 397 1033
Fax: (03) 397 1861
Price: Not supplied

HeadMax is an intelligent floppy disk drive cleaner, featuring head management and diagnostics. When a cleaning cycle is started from an on-screen menu, the signal level is measured from the calibration information on the supplied disk. The heads are then placed over the cleaning material and vibrated laterally. Then, the heads are moved to a calibration area – if there has been an improvement in amplitude, the cycle is repeated until no further improvements are found. Users are notified of most common faults (head mis-alignment, incorrect rotational speed and amplitude of movement) and results can be directed to a printer. Both 5.25- and 3.5-inch formats are available.

PostScript interpreter

GoScript/Plus v3.0

Technical Imports
Phone: (02) 954 0248
Fax: (02) 925 0311

Compaq LAN stations

Compaq Australia
Phone: (02) 660 0077
Fax: (02) 660 3120
Price: $2645 286N model 0
$3495 386N model 0
Add $200 for model 1 and $1350 for model 40

Compaq Computer Australia has released two new desktop machines, aimed specifically at the LAN workstation market, a market which the company believes has not been adequately addressed by computer manufacturers to date. The Deskpro 286N and 386N are based around the 12MHz '286 and 16MHz '386SX processors, respectively, and are available in a variety of standard configurations. The Model 0 has no internal disk storage capability, relying entirely on the network server for mass storage and boot-up. A setup routine in ROM allows system setup tasks which would normally be performed by a floppy-based setup program to be accomplished on a diskless machine. One megabyte of RAM is included as standard; this is expandable to 13Mb on the '286 machine, and 16Mb on the '386SX. On-board 16-bit VGA circuitry means that the two internal expansion slots are not occupied by a video board, and allows the choice of either color or monochrome displays. A low profile, small footprint cabinet ensures that the workstation intrudes as little as possible into the user's desk real estate. One of the internal expansion slots would typically be used for a networking card, thus supporting all the standard networking systems. The model 1 adds to the model 0 a 3.5-inch 1.44Mb diskette drive. The model 40 includes both a floppy drive and a 40Mb hard disk. Built-in security features allow a great deal of control over the network security. These include control over the serial and parallel ports on the machine, preventing booting from the floppy drive, or making the drive read-only, and having a power-on password. A key lock on the case prevents unauthorised people from bypassing these security features, and there is even provision for a cable lock to prevent light-fingered types making off with the hardware.

Price: $220 GoScript
$550 GoScript Plus

Technical Imports Australia (TIA) has announced release 3 of LaserGo's PostScript interpreter software, GoScript, which can be used to print PostScript files on printers without it. In addition to a new menu-driven interface and added printer support, the new release gives full-screen viewing of PostScript language and text files on both EGA and VGA color monitors, offers optional bit-map export to PCX or TIF files, and support for LaserGo's 2000-font typeface library –

Not a laser!

Sigma Data
Phone: (02) 957 3777
Fax: (02) 957 2013
Price: $3600 WP Page Printer
$3400 Series II Page Printer
$4999 Publisher

Sigma Data has released the new range of Qume printers that incorporate a Liquid Crystal Shutter system rather than a laser and mirrors. Offering the same performance as laser printers, the 3-model Crystalprint series is more compact than most lasers, has fewer moving parts, and there is no scanning distortion from rotating mirrors and lenses. The 6 page per minute (ppm) Crystalprint WP has 128K of RAM (expandable to 256K); the resident emulation is Diablo 630; Epson FX, HP LaserJet Plus and IBM ProPrinter are optional; there is a single resident font (Courier Medium) and a range of optional font cartridges. The Crystalprint Series II has 512K of RAM (expandable to 1.5Mb); the resident emulation is HP LaserJet II and HP font cartridges are supported. Top of the range is the Crystalprint Publisher with 3Mb of standard RAM and AppleTalk, RS-232 and Centronics parallel support; a built-in Weitek XL-8200 raster image processor is used to give very fast first-print times; the unit is PostScript compatible and offers a range of Bitstream and standard fonts.

these are now accepted by GoScript as resident fonts.

Accounting

The Books

Quercus Distributors
Phone: (08) 234 1411
Fax: (08) 234 1311
Price: $395

Developed by Western Australian computer consultancy Execom, The Books won an Australian Design Award in 1989. Designed for use by small business proprietors and other 'bookkeepers', The Books is intended to produce an accurate set of books for presentation to a public accountant. The system can be used as a simple cashbook manager for receipts and payments or it can be operated as an accrual ledger for income and expenses with creditor and debtor control; a simple general ledger can also be set up. Income and expenses can be allocated to profit and cost centres, internal and external invoices can be automatically generated on a due date, and the bank reconciliation automatically generates a list of unpresented cheques. Facilities are provided for export to Lotus 1-2-3, Multiplan and the Solution-6 accounting system. The Books requires 640K of RAM and a 20Mb hard disk.

Financial Forecaster

Computer Industries
Phone: (02) 683 1388
Fax: (02) 890 1784
Price: Not supplied

Financial Forecaster is designed to provide accurate projections of weekly cash flow, and monthly and yearly profit and loss statements for up to 20 years. Expenses can be input as dollar-based, a percentage of the expense base, sales, fixed salaries and productivity based expenses.

Windows for Excel

MoreWindows

Logo Distribution
Phone: (02) 819 6811
Fax: (02) 819 6930
Price: $169

MoreWindows was developed to enhance the display for users of Excel with an EGA or VGA system. It provides a Zoom feature that gives a display of the double the standard number of onscreen columns for editing and panning with a mouse (including in landscape mode). The package also allows users to view multiple, full-sized windows because of the high-resolution virtual display area – this allows, say, charts to be displayed in one window, while the spreadsheet, charts and macros are three others. MoreWindows also works with Micrografx Designer, Adobe Illustrator and PageMaker.

Fonts for WordPerfect

Perfect Fonts

Desktop Technology
Phone: (02) 955 4765
Fax: (02) 922 1118
Price: $570

For WordPerfect 5.0 and 5.1 users, the Perfect cartridge adds 58 fonts to those available. There are 56 Bitstream Swiss and Century fonts ranging from 6 to 30 points in both landscape and portrait orientation, plus Prestige Elite 16.6 pitch in both orientations. The full range of HP printers and most of the Canon range are supported.

4Mb floppy disks

3M ED diskettes

3M Australia
Phone: (02) 498 9333
Fax: (02) 498 4010
Price: Not announced

3M Australia has announced the release of extra high-density 3.5-inch floppy disks, capable of holding up to 4Mb of data. Using a new barium ferrite medium, the company hopes to develop disks with a capacity of 100Mb. Drives that can read the disks are available overseas and 3M expects the Sony drives to be available by the time you read this. □

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386 PRICE	$2,600.00	$2,900.00	$2,900.00	$3,500.00	$3,900.00

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SPEED MHZ	10MHZ	12 MHZ	16 MHZ	12 MHZ NEAT	16 MHZ NEAT	20 NEAT
PRICE	$1,000.00	$1,200.00	$1,400.00	$1,400.00	$1,600.00	$2000.00

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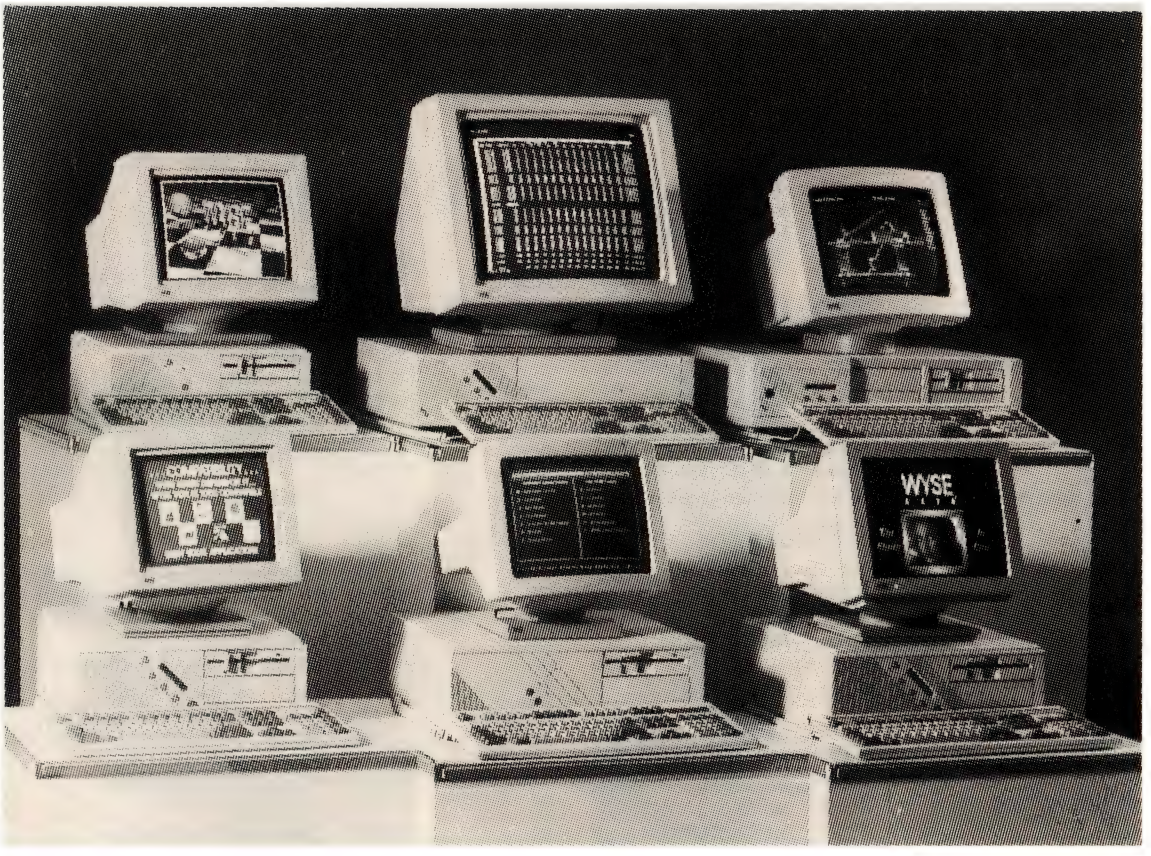

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JOHN HEPWORTH

dB/Lib and Soft Kicker

FOR A LONG time, dBase was king of the PC databases. It effectively created a new language, a standard data file format, and a standard index file format. When compatible products like Clipper and FoxBase arrived, they confirmed that the language and the file formats were virtually standards. Since then, even more vendors, programmers and users have adopted the dBase file and language formats.

Index and dBase data files have great advantages. Chiefly, each has a header at the start of the file which defines its internal structure. In particular, the dBase data file header defines the number of records, the number of fields in each record, and the size and type of each field. The index files similarly include details like the length of a key, size of a key entry and the key expression. All of this makes it easy to interrogate a dBase file, even when the program used to create it is no longer available, as a quick look at the header immediately shows the field names, types and sizes.

Since dBase files are so widely used, sooner or later most QuickBasic programmers will need to access and manipulate data files and index files in dBase format. While it's quite easy to use QuickBasic to read a dBase data file, with a few fiddles to take account of a header preceding fixed-length records, it's altogether a different matter to add and amend records and to keep index files synchronised with the data. To the rescue comes db/LIB, a library of functions to link with your QuickBasic programs. It takes all the tedium out of managing dBase format data and index files, records and fields. And, most importantly, it does this quickly and efficiently.

db/LIB

BY USING db/LIB and QuickBasic, it's easy to create a relational database with multiple data files and index files. These are completely interchangeable with data and index files created by dBase, and a vast array of other data base programs and languages that either use dBase file formats as their standard formats, or can import data from dBase files or export data to dBase files. Not only do you have the ability to do this from within the QuickBasic integrated environment, and can quickly test programs without going through a conventional compile step, but it's just as easy to compile your code to create .EXE files that can be executed in the usual way. Memo fields and all the other kinds of data fields used by dBase, can be created using db/LIB.

QuickBasic uses Quick Libraries to add additional functions and sub-programs while working in the integrated environment, and conventional libraries (with a .LIB extension) which are linked with your .OBJ files to add the same functions to your .EXE files. Naturally, the two libraries are in the db/LIB package.

Both db/LIB libraries include Database File Procedures to open and close data files, and generally manipulate data files.

Both db/LIB libraries include Database File Procedures to open and close data files, read and write fields and records, flush buffers, create data files, and generally manipulate data files. They also contain the routines that allow simultaneous access to multiple data files and the ability to link multiple data files relationally. It's even possible to change the structure of a data file without losing data.

The db/LIB Index File Procedures can open or close an index file, and can get, add or delete a key. They use a B-tree method of index building and access, and can build any number of indexes for a database. Index keys can be created from whole fields, parts of fields or compound expressions involving multiple fields, or parts of more than one field. Searches can be made on a full or partial key.

Other procedures manage memo files and evaluate expressions, while there is a further group of string manipulation and arithmetic procedures. The query functions allow expressions written in Basic or dBase syntax, have a vast array of data manipulation functions, can build compound expressions with Boolean operators, and include dynamic date validation and conversion of date expressions using up to 10 date formats.

A typical application created with db/LIB consists of several separate modules, each compiled and linked separately to create several .EXE files. The Basic Shell command is used to transfer from one of these programs to another as required. On the disk is about 700K of sample programs, as ASCII files ready to compile. These can be separately compiled, or the installation batch file will automatically copy them to any desired directory and then compile them. One set of sample programs creates a relational database to maintain a series of reviews and details of video movies, and consists of two data files, plus index files and memo files. Also included is an application called DBLIB that can load any dBase-format data file, together with an index. It can also add, amend, or delete records, create new data files, copy data file structures and create new index files. Taking a quick look at the sample programs gives a clear idea of good ways to use QuickBasic and db/LIB to create a powerful database.

Db/LIB comes with a 190-page manual that gives an overview of database concepts and design, full details of all the procedures in the library, and also describes all the sample programs. The manual is quite clearly written, but it is aimed at the experienced programmer rather that the novice. However, this is to

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be expected as, in general, it will be the experienced programmer who needs to manipulate such files.

Db/LIB also makes it easy for a QuickBasic programmer to use the industry-standard data and index file formats pioneered by dBase, and is quite efficient and fast. Mixed-language programming can be fantastically useful, blending the strengths of both while avoiding the weaknesses of either. Clipper allows the easy blending of dBase and C. Now, db/LIB mixes QuickBasic and dBase, and does it without needing a TSR database manager. Like many database libraries, it has minimal memory overhead, no run-time module, and no royalty payment is required when you distribute programs using db/LIB.

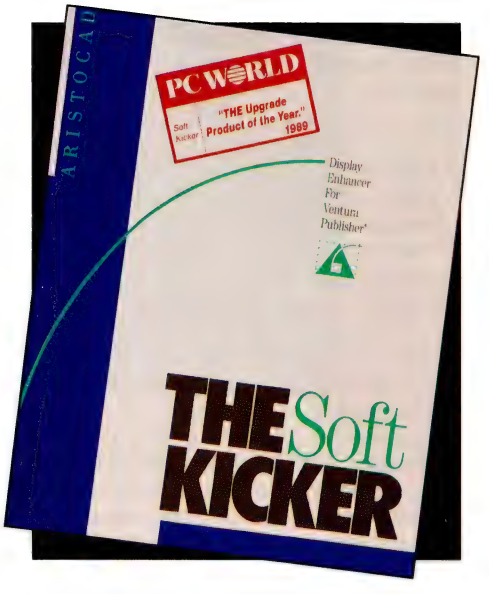
Compared with Clipper, db/LIB offers immediate access to Basic functions as well as database functions and dBase files, and has minimal overhead, adding only around 30K to your programs compared to the 170K or so with Clipper. The trade-off is that programs created with db/LIB may be somewhat slower than those written in Clipper, and the source code with db/LIB will probably be a little longer and more complex than the Clipper code.

Db/LIB is a product of AJS Publishing. The review copy came from The Computer Factory, 214 Harbord Rd, Brookvale NSW 2100, (02) 938 2522. It is available in a single user version for $295, while the network version costs $795.

The Soft Kicker

ONE OF THE most tedious tasks imaginable is to use a standard EGA or VGA card and monitor with Ventura. On a standard Ventura screen only, a small part of the page is visible. To look around the page, the scroll bars at the bottom and the right of the screen must be used. To zoom the image to see the whole page, or get additional detail means using the menus or speed keys. Unfortunately, each time a scroll bar is moved, Ventura must re-draw the screen, and at times it sometimes seems to take forever!

The Soft Kicker is the solution. It is a software screen driver that replaces the standard Ventura screen driver and uses the memory on the video board to create a virtual screen seen by Ventura. This virtual screen has the full area of the page, but only a small portion can be seen. The physical screen is just a window to the virtual screen, and at any time the physical screen can pan around the virtual screen so that any desired part is visible. And, even better – the scroll bars are no longer needed. Just move the mouse pointer around the screen and, as it hits the side of the virtual screen, the image pans smoothly across while quick clicks allow instant zooming and access to the menu. The user sees an amazing improvement in speed as Ventura no longer has to take any part in the panning and zooming of the image. It just writes a full-page image to the giant virtual screen while The Soft Kicker quickly and efficiently takes care of moving the image around.



The Soft Kicker has to be the most productive utility if you use Ventura.

Installation is just as easy – use the installation program on the single distribution disk, and follow the prompts. The manual is very brief, but there is little to say and for the user to do, either during installation or later.

As reviewed, the standard version of the Soft Kicker only included drivers for Ventura, but by now should include drivers for other GEM applications. For users who want the same functions with Windows 2.xx as well as Ventura, there is another version with drivers for both environments called the Soft Kicker Plus. Published by Aristocad, the Soft Kicker is distributed by Logo, Suite 303, Henry Lawson Business Centre, Birkenhead Point, Drummoyne 2047 NSW, (02) 819 6811, and costs $169 for the Soft Kicker, and $249 for The Soft Kicker Plus.

For anyone using Ventura on an EGA or VGA, the Soft Kicker has to be the most productive utility they could ever add to their system. □

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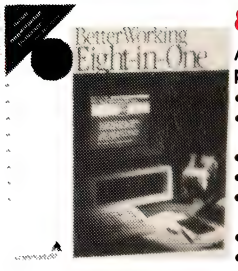

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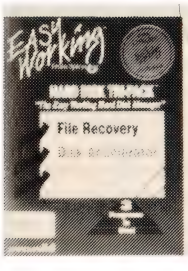

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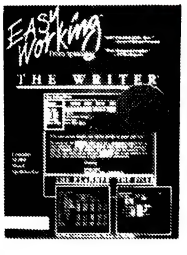

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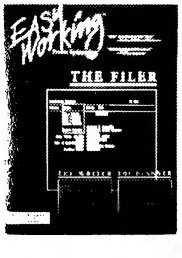

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GREGG FAULKNER

Our new 500

A COUPLE OF weeks ago, the cook and I purchased a little sister for our A2000. We bought an Amiga 500 Starter Pack from Norman Ross Discounts for three reasons. Firstly, I wanted to experience exactly what a new Amiga owner experiences on buying a 500. Secondly, I wanted to check on the level of assistance a potential Amiga owner is provided when dealing with a department store. And, the final reason was to give the cook a machine of her own so I can get onto my 2000 again.

Let me cover the second reason first – well its been a long month and I'm in that sort of mood. To say that I was pleasantly surprised would be an understatement. I really didn't have a particularly good feeling about department stores selling computers, as you can tell from several disparaging remarks I've made in earlier columns.

Norman Ross Discounts has been selling Amigas, along with various MS-Dos machines, for several months now. In Canberra, their computer section is managed by David Smith, a gentleman who proved to be reasonably knowledgeable, courteous, and above all, helpful. He made sure that I was aware of the Amiga's functionality, inquired about my proposed use for the machine, and suggested a future upgrade path including a second floppy drive and expansion memory.

Wow! That wasn't the sort of response I expected from a department store. Not only that, but their price was very competitive and they had stock on hand. What more could I ask for? I felt like not only buying the machine, but also buying shares in the store.

Now for my first reason. I took the 500 home and opened the package. The cook and I decided to treat the exercise as though we were raw beginners, taking everything step by step and following the instructions provided.

My first observation revealed that the 500 was packaged very well – *everything* well arranged in the moulded foam, allowing no chance of transit damage. All the components hooked up easily and worked straight away. I loaded the Workbench disk and it booted smoothly and quietly – note that I said *quietly*. A quiet Amiga floppy drive, what next?

The printer I purchased was the Olivetti MPS 105, a nice little lightweight color dot-matrix machine. Smith had assured me that the Olivetti was Epson-X compatible, so I set out to install the appropriate printer driver. As we had agreed, I followed the instructions in the Amiga manual – and got absolutely nowhere.

How to be lost

FOLLOWING THE instructions with scrupulous accuracy leads to a total dead end. Now I know why I get so many calls from desperate new owners. If you know nothing about the Amiga's architecture, and you try to install a printer driver by following the manual, you will end up hopelessly lost – it just doesn't work.

I don't know why an international organisation like Commodore can't produce an accurate, easy to follow user manual. I finally gave up on the manual and resorted to a simple (for an owner with four years experience) Dos command to copy the driver from the Extras disk across to the Workbench disk. This was fine for me, but I really feel sorry for the raw beginner.

After installing the Epson-X printer driver, I gave the Olivetti printer a good work-out and found it to be a very nice little printer indeed. The draft quality print is fairly rough, as is to be expected from a 9-pin machine, but the Near Letter Quality print is very nicely finished. Text printed from Kindwords, using the superfonts option, is printed in graphics mode on the Olivetti and the result is excellent.

As with all color dot-matrix printers, the Olivetti makes a separate pass for each color, and thus color printing is quite slow. Results are comparable with output from any other Epson-X compatible machine I have used, and better than some. At $449 rrp, the Olivetti is a strong contender in a market dominated by the Star NX-1000.

Olivetti have, until recently, been regarded in some quarters as being expensive when it came to consumables, such as replacement ribbons. This situation has improved markedly, and replacement color ribbon cartridges for the MPS 105 are around $30 rrp. For a cartridge with a life of around three million characters, this is not bad at all.

I bought an Amiga 500, posing as a complete novice – and found Commodore almost has it right.

In the March issue, I criticised Commodore's choice of games software included in the 500 Starter Pack – games which have to be write-enabled in order to run is a bane to new users. They are inevitably going to make mistakes like removing disks while the drive is still writing, and have to be protected from themselves.

While I applaud the inclusion of Kindwords II in the Starter Pack, the same criticism must be applied. When Kindwords is loaded, it immediately displays a message that the disk must be write-enabled for use, which is ridiculous. It simply encourages new users to try to store their data on the program disk, and this is a practice to be strongly discouraged.

Kindwords II is a very useful beginner-level wordprocessor. It is a particularly good introductory package as it makes full use of the Amiga environment. The most frequently used menu options have command-key equivalents, making the package faster in use as you become more experienced with it. Many more sophisticated Amiga packages use this approach, and it is good to see beginners being exposed to the technique right from the start.

I felt like not only buying the machine, but also buying shares in the store.

In some overseas markets, the Amiga 500 is marketed with other software packages including MaxiPlan (spreadsheet). In my opinion, this is the sort of approach which will lift the Amiga from being regarded solely as a games machine. It may also help to reduce the negative publicity generated by new owners who become quickly discouraged by games which crash and become unusable.

It's all very well getting a helpful system message like 'Disk invalid . . . use Diskdoctor', but it doesn't mean a lot to the new user. As Diskdoctor cannot be accessed from the Workbench environment, the message becomes superfluous. If you know enough about the use of AmigaDos to be able to use Diskdoctor, you already know how to recover a corrupted disk.

Viruses

ONE ISSUE which is not addressed in any way by the Amiga documentation is that of computer viruses. This is an important topic for the new Amiga owner to be made aware of. Far from inducing panic, I believe that good solid information about computer viruses would help to reassure new Amiga users. A side effect may be to reduce the incidence of software piracy!

Commodore might be well advised to include a public domain virus detector/-killer, such as the excellent VirusX, on every Workbench disk supplied with new Amigas. Perhaps the Australian branch of Commodore could even be prevailed upon to replace the 'vanilla' Workbench disk with one tailored for Australian consumers. For example, a PAL-sized preferences window would be a nice touch.

Frankly, the emotion generated by the 500 Starter Pack was largely one of sadness that there is so little tailoring of the pack for the Australian consumer. It looks like yet another case where the Australian consumer is being treated with total disdain by a multi-national. 'If it's good enough for America/Europe/Germany/Botswana, then it's good enough for Australia' seems to be the prevailing attitude.

Interestingly, this same lack of imagination in marketing the product extends to the business and government branch of Commodore. Government departments and large businesses are frequently loaned Amiga 2000 or 2500 machines for a week or two for evaluation and promotion. Now, it occurs to me that it would be no big task to have loaded on each machine a self-running demonstration of the Amiga's capabilities. Do Commodore provide such a demonstration? You guessed it.

What they do provide on these 'seed' machines is a set of typical Amiga software including MaxiPlan, Deluxe Paint III, Animagic and Videoscape 3D. What they generally don't provide is any documentation for these packages.

Animagic is a terrific package, and I love using it. Without documentation though, it is probably one of the least friendly packages I know. Possibly the only less friendly package which leaps to mind is Videoscape 3D. I really feel for anyone trying to make their way through either of these without complete documentation. This is marketing suicide as all this approach succeeds in doing is to convince potential buyers that the Amiga is a difficult/impossible machine to use. □

THE BIGGEST ...AND THE BEST!

Which one monthly magazine is virtually essential reading for anyone in Australia who is involved in, or interested in electronics? There is only one choice: *Electronics Australia with ETI*, which combines the best of both *Electronics Australia* and *ETI*.

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JOHN HEPWORTH

Catdisk and WSSI

A simple listing of disks with details recorded in the catalog is quickly available, as is showing all files on a particular disk.

IF YOU HAVE a reasonable Shareware collection, handling requests from friends for copies will probably be second nature. My friends, work mates and acquaintances often want to raid my library. Just as often, when I sit down each month to write this column, I need to find a particular file on one of my 250 disks of Shareware. These contain about 120Mb of archive files, and could not be manually searched in a realistic time. Just as often, in a busy office, you will have a vast range of standard documents, specifications, contracts and the like. With minor modifications to suit changing circumstances, and your client's needs, they can be massaged into shape far faster than trying to create a new document from scratch each time. But again, the one you need could be on any one of hundreds of disks.

It's obviously impossible to sit down and run the disks through a drive one by one, just to read the directories and try to make sense out of them. Apart from taking far too much time, and with the ever-present probability of missing the name of the desired file, trying to remember what each terse eight character file name means is impossible. It's essential to use the computer in front of you to take care of managing that disk library, and create a catalog that can be manipulated and searched with some efficiency.

A very well known disk cataloging program is WSSI. It is fast, and has powerful sorting and reporting options, but at the same time, it has some limitations. It loads its whole file into memory, limiting the number of disks and files that can be cataloged in a given catalog file. It also suffers from a rather unfriendly user interface. Many users would willingly trade some of WSSI's power for a menu driven interface, and luckily, there is a menu driven disk catalog program which trades a little of the power for an improved interface. This program is Catdisk.

Catdisk

CATDISK IS simply a menu driven disk indexing system that records the disk label, directory name, file name and extension, creation date and time, the file attributes, and the name of the archive file containing the file (if any). The user can enter a 30 character description for each file, and there are good reporting and searching functions. It's even possible to catalog the files on a hard disk, although this is not the primary purpose for which Catdisk was designed.

The main Catdisk program is called Catdisk.EXE, and running it loads two data files. Catdisk.DTA is the default data file with all the details on all the files found on the cataloged disks, while the second default data file is called Catdisk.SUM, an abbreviated data file with just one entry for each disk which has been cataloged. Catdisk.SUM is used to speed up processing when cataloging disks, as it makes it easier for the program to determine if any particular disk has already been cataloged without having to scan right through the full data file. Catdisk can be configured to use default data files with different names, and from within Catdisk, alternative data files can be selected at any time.

At first, a main menu appears with 14 options which can be accessed by pressing the keys zero to nine for cataloging and reporting functions, letter keys to change drives, F2 to search for files by comment, and rather oddly, F1 to go to the function to add or change file comments. There is no on-line help, but the prompts are clear and there is little need for help at any time. At the top of the screen is the status display showing the number of disks and files which have been recorded in the current catalog file, the drive in use for disks to be cataloged, the name of the current catalog file, how many more disks and files can be included in the catalog, whether or not files inside archive files will be cataloged, and the destinations for reports.

Disks can be cataloged, uncataloged or recataloged. All you have to do is put a disk into the default drive and press 'four' at the main menu, and Catdisk will read through the directories on the disk. It then sorts the details for the files on that disk into alphabetical order by filename, and finally, merges the details with the existing main catalog file. This main file always stays in alphabetical order which is advantageous when reporting or writing your own program to extract data from the catalog file. An existing disk is recataloged exactly the same way, but with the difference that a message comes up warning that a disk with the same volume label has already been cataloged, and asks if the details already on file for that label should be replaced. Removing the details of files on any one disk from the catalog, is done by pressing the 'five' key from the main menu and manually entering the volume label of the unwanted disk.

Pressing F1 allows the user to add a 30 character comment for each file. This is usually enough, but can be a bit short, and is a compromise based on the use of fixed length records in the data file. If you make the allowable length of comments longer, more space must be allocated on disk in every record. However, if you make them shorter while the data file is small, there is less room for meaningful information for the user. Unfortunately, there is no secondary 'comments' field for category, unlike WSSI, but as any searching and reporting on comments scans for the desired string right across the comments field in every record – a bit of common sense in creating comments is usually the solution.

A good range of reporting functions is available, with reports being able to be sent to the screen, disk or printer. A simple listing of disks with details recorded in the catalog is quickly available, as is showing all files on a particular disk, all files in a particular archive file, or files selected by filename, with wildcards if desired. A final reporting option shows all files in alphabetical order. Regrettably, it

is not possible to list files in disk label order.

One of the nice things about Catdisk is that it can read all the currently common archive file formats, including .LHZ and .ZIP, and can optionally record details of all files within archives as well as recording the archive files themselves.

Catdisk's speed is adequate. On an XT, cataloging an additional disk was excellent at first with only a few disks cataloged, but it slowed down as the number of disks rose above the 100 mark. However, using an AT or better, significantly speeds things up. Speed is also dependent on the speed of the disk containing the data file, as details of a newly cataloged disk are recorded by reading the existing catalog file, merging the details of the new disk, and writing it back out to the disk.

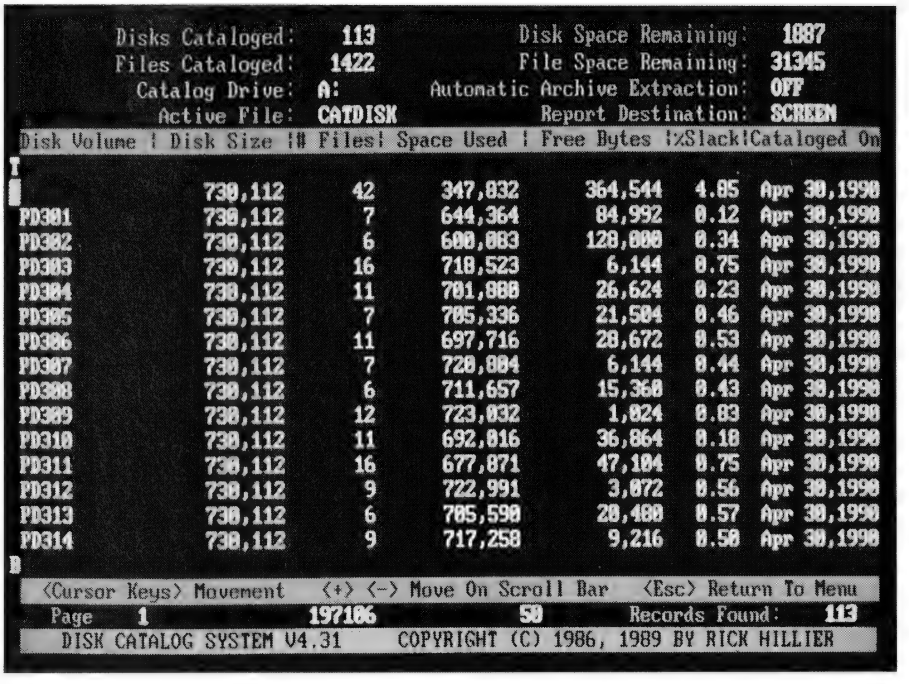
Conclusion

BOTH WSSI and Catdisk fill a vital role for all PC users, whether they are business users or hobbyists. They both make it easy to find a file by disk label, file name or comment, but while WSSI emphasises powerful searching and sorting functions, Catdisk offers a very simple and approachable menu system. Will I transfer my Shareware catalog to Catdisk from WSSI? It's very tempting, as a Catdisk catalog can record the details of far more disks and files than a WSSI catalog, but for this particular use, I find the additional flexibility of sorting and reporting in WSSI essential. At the same time, I expect to use Catdisk to maintain catalogs of all my disks which hold documents and databases, for here the ease of use is paramount.

You can make up your own mind about which is best for you easily as both are Shareware and can be obtained from bulletin boards, user group libraries, commercial Shareware libraries or direct form the authors. Catdisk is the product of Rick Hillier, 405 Barrington Lane, Waterloo Ontario, Canada, N2T 1H9. Registration is a mere CAN$20. The version reviewed is 4.31, and is available on many bulletin boards as CDISK431. WSSI is a product of the WSS Division Of DDC, 4 Reeves Rd, Bedford MA 01730, USA. Registration is US$25. A 'demonstration' edition of WSSI version 4.00 is on bulletin boards in three archive files, WSSI400A, WSSI400B and WSSI400C, and is fully functional except that it is limited to cataloging 1000 files.

A pair of 5¼ inch inch disks, or one 3½ inch inch disk containing copies of Catdisk and WSSI is available for $10 (including postage and packaging), from Salrail, PO Box 102, Haberfield 2045 NSW. And, make sure you specify the disk size you require. If you continue to use the one, or both, of the packages, ensure you register with the author after a reasonable evaluation period. □

At first, a main menu appears in Catdisk with 14 options which can be accessed by pressing the keys zero to nine for cataloging and reporting functions.



Catdisk is simply a menu driven disk indexing system that records the disk label, file name and extension, and the name of the archive file containing the file (if any).

STEWART FIST

The old 68000 ain't what it use to be

I'VE JUST SPENT some time on a Mac SE (not the SE 30), and I must admit that the last year or so with my Mac II has rather blinded me to the fact that the old Mac chip, the Motorola 68000, is too slow for many of the sophisticated tasks that we expect of it today.

Tasks that would have taken but a few seconds on my Mac II, gave me time to make a coffee on the SE. And, simple page definition using Adobe Type Manager to send a few pages of text to a Sharp laser printer was the occasion for a rather lengthy social event. Every 10 minutes or so, I would duck back into the computer room to see if anything had happened.

I've never been a zealot for more speed, bigger memories and larger hard disks on the Mac or any other computer. I'm a great believer of horses-for-courses – that you can do pretty well on an 'inferior' machine with only a bit more thought, a bit more learning, or a bit more effort.

If you've only got a Mac Plus or the old 512 model, don't try to use Word 4.0 or FullWrite Professional. You limit yourself to WriteNow, and 95 per cent of the time it will do everything you need, just as quickly and easily. In fact, some things (like learning to use the program) will be easier.

But I must admit that the reviewer's disease has finally caught up with me. I've become addicted to having the 68020 chip, 5Mb of memory and a 40Mb hard disk. I need to remember that many of my readers don't have these enhancements, and that probably when I say that 'Page Preview in Word 4.0 is lightning-fast', this only applies to those few of you who have 68020- or 68030-based machines.

The difference between the old 68000 chip and the 68020 which drives my Mac II, isn't all that great when you look at the figures usually quoted to indicate processing speed. The processor of the original Mac (with 128K of RAM) was rated at 8MHz, and the chip itself contained more than 70,000 transistors, which was quite an achievement in those days. This was the chip used in all the Macs up to, and including, the Mac SE.

But Apple achieved a lot more speed out of the chip by good overall architectural design, with supporting processors, and by writing the 64K of ROM on the motherboard very tightly in native 68000 assembly language – a coding and debugging job that supposedly took them three years.

It's interesting to note that the 68020 is rated at 16.7MHz – only twice as fast in theory. But the Mac II is a true 32-bit architecture, and it has many more refinements that make it even faster in normal processing. There is also the speed-factor gains you obtain on multi-megabyte machines by keeping most of the program algorithms in RAM.

I must admit that the reviewer's disease has finally caught up with me.

It is worth looking in depth at the 68020, although Motorola has long since given us the 68030 (at 20- and 25MHz) which the company says 'provides up to twice the performance of the -020'. I've had an SE 30 on loan a couple of times and I must say that I haven't noticed the claimed 'double' gains here, however I have experienced applications boosts between the 68000 and the -020 machines which are apparent.

The -020

MY GUESS IS that this is the law of diminishing returns in operation. I think it is quite possible that for today's 'average' Mac user (whoever he or she is), the -020 represents the best value for price, and for the technological complexity in manufacture – although, if Apple gave me a new Mac IIfx with an 8.24 GC Display Card tomorrow, I probably wouldn't knock it back!

The 68020 was the first of the Motorola processors to break with the DIP (Dual In-line Package) designs, which are the chips that look like a rectangular cockroach. The -020 is a square pin-grid array package with 120 pins, of which only 114 are used for connections.

This was a fair jump in access to the workings of the chip when you think about it. The old DIP packages only allowed a very limited access to the chip functions through a single row of connectors on each side, and it needed to 'multiplex' address and data lines (that is, it uses the same connector for different purposes) which was one reason why the speed of this chip design was limited.

The change allowed the -020 to process instructions at a sustained rate of two or three MIPS (Millions of Instructions Per Second), and it can reach bursts of eight MIPS which puts it at the lower end of the mainframe range. The new design also provided direct connections to co-processors – to the point where the Mac system is damn near becoming a parallel-processing machine.

Another reason for the increase in useful speed was that the -020 has an on-chip 'cache' of 256 bytes which allows the CPU to perform simultaneous data and instruction accesses and execution. Most programs spend quite a bit of their execution time recycling only a few subroutines or loops, and the cache allows these to execute without having to constantly access RAM. They can be temporarily stored on-board the chip and avoid the 'wait-state' delays inherent in the process of getting instructions and data from the slower RAM memory chips.

Cache offers the ability to fetch instructions and operands in streams, and process them in a parallel manner. The architecture allows the processor to get the instructions and data from the cache quickly and easily, and this reduces bus bottlenecks caused by constant RAM access on the external buses. The -020 CPU can access and store instructions that are required now and some that will be required in the immediate future (in 'streams') and have them ready for the next cycle of processing.

The increase in speed through this design is both in the fetching/execution time of the CPU, and in the total system

throughput, because more bus time is available to other components, such as printers and disks.

Now all this would have been of little use to Apple if the change-over from the Macs with 68000 chips, and to those with the 68020, had not been compatible. This would have put Apple in the same constant state of confusion that IBM has with its multitude of different modes and its OS/2 operating system.

Intel's improvements in chip design for the IBM are largely made at the cost of constantly rewriting software, the notorious search for monitor drivers, botched up memory extensions, and with OS/2, the rewriting of the operating system and most of the applications.

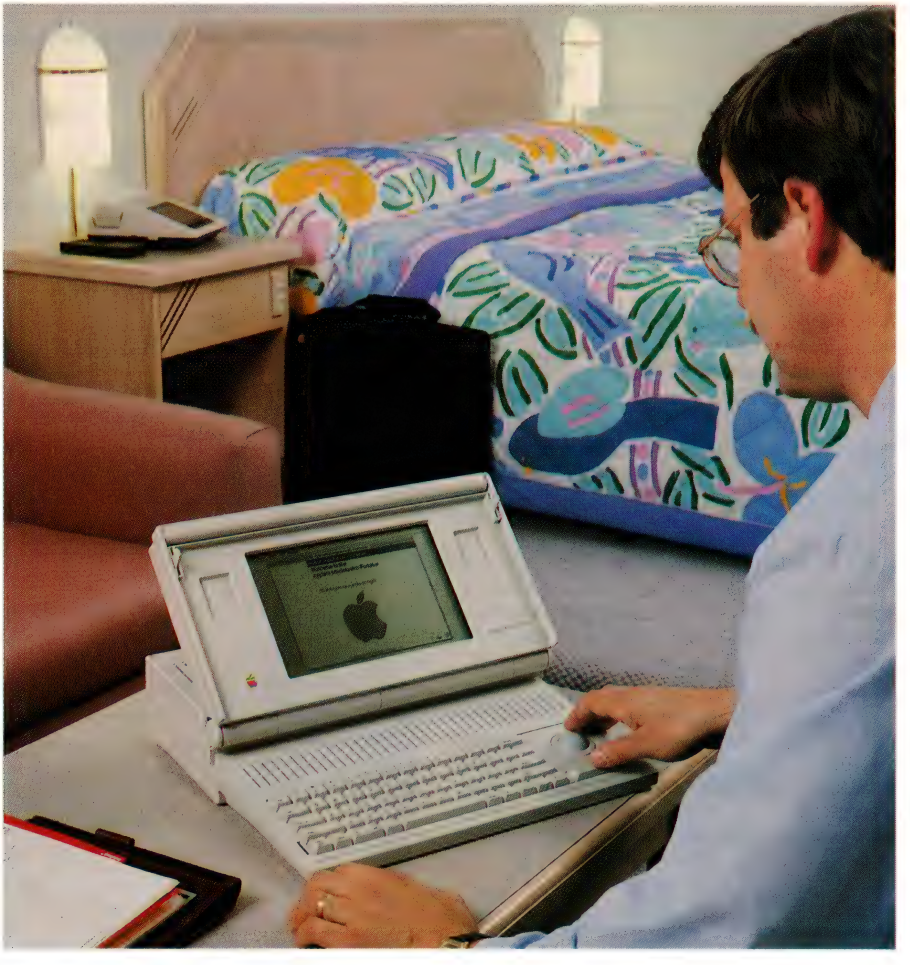
Although the -020 was its first full 32-bit CPU, Motorola managed to keep it 'upwardly user-object code compatible' with the earlier members of the family, so most of the old software ran on the new chip. In fact, the compatibility is such that it is possible to buy a socket converter and use the 68020 chip in the older Mac computers, although you'd lose all the 32-bit instructions.

The -020 supported all the languages and software written for the 68000, which was quite an achievement – a tradition, incidentally, that Motorola carried on to a great degree with the -030.

The -020 chip design also featured dynamic bus sizing, which allows data transfer to or from 8-bit, 16-bit or 32-bit ports, by dynamically determining the port size during each bus cycle. If the data is 32-bit wide it will accept it in one cycle, however, if it is only 16-bits wide, then it will run another cycle to work with the other 16-bits. If the port responds with 8-bits, the -020 takes four cycles to read the data. This means that the programmer is no longer required to develop programs that are bus dependent, and it allows the use of low-cost, non-32-bit devices.

Now that all sounds pretty clever, and pretty dramatic (although it doesn't always mean perfect compatibility). Technology changes at such a pace, doesn't it? The correct answer here is no! Motorola first released the 68020 back in July 1984. Doesn't it surprise you to find that this chip is now six years old – which is damn near half the life-span of personal computing?

The company further upped the ante way back in November 1987 with the 68030 chip which Apple use in the MAC SE 30 and all of its later modular machines – so even the -030 is nearly three years old. But it is interesting to note that only last year, with the Portable, Apple went back to a 16MHz CMOS version of the original 68000, rather than use the -020 or the -030.



Here is a real illustration of the gains made by advancements in CPU architectures: both the Portable and the Mac II have CMOS chips rated at about 16MHz, but Apple admit that the Mac II is about 'twice as fast' as the Portable. The next time a computer salesman quotes clock-speed to you, remember this Portable versus the Mac II comparison!

Here is a real illustration of the gains made by advancements in CPU architectures. The Portable and the Mac II both have CMOS chips rated at about the same clock speed (16MHz), but Apple admit that the Mac II is about 'twice as fast' as the Portable. The next time a computer salesman quotes clock-speed to you, remember this Portable versus the Mac II comparison!

Apparently, the reason why Apple appeared to step back in time when choosing a chip for the Portable was simply because of power consumption. The -020 is a 2-micron HCMOS device which requires only 1.5 watts of power which, at the time, was even less than the original 68000. But the new high-speed CMOS version of the old 68000 chip required less power still. Apple saw power consumption as being critical with the Portable, and in fact, its most innovative design work in this machine has gone into the power-drain problem.

However, it is nice to know, if you are a Mac Plus or SE owner, that the company now has a vested interest in maintaining operating system and software compatibility with the old 68000 chip. There has always been a risk that Apple (like most other computer companies) would gradually drift away from supporting its old machines. Apple has always been better than most companies in this light, but it must become a burden to constantly think about the backward drag of old standards and old customers, when you'd like to concentrate on new innovations.

A SCANNING GENIUS

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CAMERON HAND SCANNERS

If you own **an AMIGA, or an ATARI ST,** there's no need to feel left out. Pactronics are pleased to announce the release in Australia of the Cameron Hand Scanners. The TYPE 10 (Suitable for Amiga and ST) is a 105mm wide B&W scanner. The unit has variable resolution (100, 200, 300, 400 d.p.i.), and represents colours with up to 16 gray scales. It is supplied complete with Handy Painter graphics software and Handy Reader O.C.R. software. The Handy Reader software comes pretrained for most common fonts, but can be easily trained to even recognise **Amiga fonts printed on a dot matrix printer!**

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The -040

THE -030 REPRESENTS the state-of-the-art in Macintosh at the present time, although the -040 has already appeared on the horizon. The main advantages that the -030 appears to offer, is a complete on-chip Memory Management Unit (the Mac II needs a separate MMU chip) which provides both software protection and virtual memory management functions which are critical to full pre-emptive multitasking applications.

The MMU keeps the various functions from interfering with each other, but it is only absolutely necessary for the true pre-emptive forms of multitasking like Unix. MultiFinder isn't pre-emptive (background operations don't keep running), so it is able to run on any of the Mac lines with sufficient memory.

If you're use to hacking along with a machine holding under 1Mb of RAM, then MultiFinder probably hasn't been a feature of your life, but when you've tasted the honey of a few megabytes and the ability to swap instantly between a number of applications, then multitasking (of some sort) becomes almost an imperative.

However, it is nice to know, if you are a Mac Plus or SE owner, that the company now has a vested interest in maintaining operating system and software compatibility with the old 68000 chip.

All of these chip developments, and most of the changes that are taking place with the Mac operating system, don't really need to make much difference to you if you are already happy with what you have. Don't be tempted to push an old Mac past its limits with bigger and supposedly 'better' applications if it is performing quite satisfactorily with a small zippy little number already.

However, Apple see the rainbow of multimedia ahead, and there is undoubtedly a pot of gold buried at its end. Apple is also extending its marketing push into CAD and specialised work-station areas, and these applications require power, and often operating systems like Unix (which needs the MMU of the 68030).

Unless you've got urgent needs for a bigger and faster machine, this is actually a good time to sit back, bank your money and watch the technology evolve. Apple has decided to maintain its development program, and support it by maintaining a relatively high price on its products. And, despite the premium you must pay to belong to the Mac clan, the machines are still doing very well in global marketing terms, so its corporate strategy seems to be working – from the corporation's viewpoint certainly, and eventually for ours. □

SOFTWARE SPECIALS

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Being at home is better than being in one.

Some people with multiple sclerosis are forced to seek admission to a nursing home when, with the right services and financial support, they could continue living in their own homes.

So your gift support is as important as your understanding.

MS

For more information about multiple sclerosis contact the MS Society in your state.

How can Software only cost $5?

IT'S SHAREWARE!

Look at the ads! Any number will tell you that you can buy software for your IBM PC or compatible for only a few dollars. Well, you can't believe everything that you read. These $5 (or $4 or $7 or $10 or whatever) disks are only for you to evaluate the software – if you wish to use the software you must pay more to the author. This is SHAREWARE and it has revolutionised software distribution.

How it works

Shareware relies upon the honesty of the users of software to pay for the software which they use. To continue using the $5 (or whatever) disk is a breach of copyright in the same way as using a pirate copy of other software.

The great advantage of Shareware is that potential users are able to evaluate a product at little or no cost and then only purchase, or register, if they intend to continue using the product. Registration varies from $20 to $200, and because the conventional marketing channels are by-passed this is exceptional value.

Shareware users are even encouraged to copy their software and give a copy to their friends so they too can decide if they would like to use the product, and of course then pay for it.

Word would spread slowly if the author solely relied upon users just sharing copies with their friends. User groups are encouraged to share the software with their members on a non profit basis. Many user groups set up Bulletin Boards so that members can "down load" software which they would like to evaluate for use. This is another accepted way of distributing shareware.

Some commercial operations also distribute shareware and charge for the disks. The more they can sell the more profit they make so they encourage you to buy the evaluation copies and sometimes "forget" to tell you that if you want to continue using the software that an additional payment is required.

It is fine for these commercial operations to distribute Shareware as long as their ads clearly state that the additional payment is required. Software for $5 is just too good to be true!

What is Public Domain Software?

Public Domain software is created by authors who chose not to seek formal rights or royalties. There is no restriction of any kind on distribution of this kind of software. Most public domain software is games or utilities. There are very few complete products in the public domain.

Shareware software on the other hand is distributed so the user can evaluate the software to decide whether he will register with the author and continue to use the software.

Shareware is an alternate method of marketing software, not really a different kind of software. In fact the more successful Shareware products hold their own against their commercially distributed competitors. The greatest difference is that the Shareware product's packaging is not as fancy and the price is much lower.

Where can I obtain Shareware trial disks?

A collection of disks is generally referred to as a Library. A Library may be kept by a user group, a bulletin board operator or by a commercial diskette distributor.

Some education establishments, companies and government departments have a library on a CD-ROM (a large capacity read only disk drive using compact disk technology) and allow students to make copies at no or at a very low cost.

And of course it is quite acceptable for your friends to give you copies of Shareware software that they may be using or have evaluated.

The only restriction is that if you decide to use the software then you should register so that the author is rewarded for his work.

Do I need to join a Library?

Some commercial libraries and most user groups insist that you join before you can purchase disks. If you intend to purchase disks a properly prepared catalogue will make your selections easier and repay your membership costs many times over.

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PC-SIG is the world's most respected Shareware Library and contains well over 2000 disks. PC-SIG does NOT require you to become a member to purchase diskettes but is the leading publisher of information on Shareware. PC-SIG also makes its Library available on CD-ROM for companies, educational bodies and government departments.

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YOUR AMSTRAD

TIM HARTNELL

Colors, cursors and Wizard

THIS MONTH, WE'LL be comparing text mode compatibility when using different graphics displays, sharing a program to modify the cursor shape when running under Dos, and giving you a daft little program which works out both your wealth and your age!

If you are writing software using normal Basic (that is, not Basic2 on the Amstrad PC), and you want that software to run with either the monochrome or graphics display, Bob Kruggel warns that you need to be aware of some significant differences between these adapters and how they interpret the Color command.

The meanings of the foreground color for the displays are –

FORGRND COLOUR	DISPLAY TYPE MONO	GRAPHICS
0	WHITE	BLACK
1	UNDERLINED	BLUE
2	WHITE	GREEN
3	WHITE	CYAN
4	WHITE	RED
5	WHITE	MAGENTA
6	WHITE	BROWN
7	BRIGHT WHITE	WHITE
8	BRT UNDLINED	GRAY
9	BRIGHT WHITE	LT BLUE
10	BRIGHT WHITE	LT GREEN
11	BRIGHT WHITE	LT CYAN
12	BRIGHT WHITE	LT RED
13	BRIGHT WHITE	LT MAGENTA
14	BRIGHT WHITE	YELLOW
15	BRIGHT WHITE	BRT WHITE

– add 16 to the foreground color numbers for blinking on both display types. Kruggel also suggests that you try to visualise what your program will look like when running on another type of display – note that there is no 'underline' on the graphics adapter. Further, if you're POKEing directly to the display memory, you need to test for the type of display being used, and adjust your segment accordingly using –

```
DEF SEG=0
SEGTYPE=(PEEK(&H410) AND (&H30)
IF SEGTYPE)32 THEN SEGMENT=&HB000:
   ELSE SEGMENT=&HB800
DEF SEG=SEGMENT
```

Make me a big cursor

A few issues ago I said I was having problems seeing the cursor on my portable Amstrad LCD screen. In response to my plea for help, Jason Waynewright of Woy Woy, NSW, sent me in a public domain program he downloaded from a bulletin board in Hawaii (how international the world of computers is). Thanks Jason, the program works a treat on my 'big' Amstrad, making the cursor into a blob you can see from 100 paces, but sadly, it does nothing on the portable.

Listing 1 will turn your cursor on a 'big' computer into a blob, or anything else you

```
10 'CRL.BAS by John R. Herzfeld, Mercer Island
20 '   via Hawaii and Woy Woy!
270 '
300 DEFINT A-Z: FILENAME$= "CRL.COM"  'You may use another name!
320 PRINT "On which drive do you want the COM file? [RETURN = default drive]"
340 Q$=INPUT$(1): IF Q$=CHR$(13) THEN DRIVE$="" ELSE DRIVE$= Q$+":"
360 FILESPEC$= DRIVE$+ FILENAME$: CHECKSUM= 0
380 FOR I= 1 TO 102: READ N: CHECKSUM= CHECKSUM+ N: NEXT
400 READ N: IF N<>CHECKSUM THEN PRINT "ERROR - VERIFY DATA": STOP
420 'Last item in list is the sum of the 102 bytes to be put into the file
440 RESTORE: OPEN "R", 1, FILESPEC$, 1
460 FIELD 1, 1 AS N$: FOR I= 1 TO 102: READ N: LSET N$ = CHR$(N): PUT 1
480 NEXT: CLOSE: PRINT FILESPEC$ + " CREATED": END
1000 DATA &H31,&HC9,&H8A,&H0E,&H80,&H00,&H80,&HF1
1010 DATA &H00,&H75,&H0C,&HB8,&H00,&H01,&HB9
1020 DATA &H0D,&H0A
1030 DATA &HCD,&H10,&HCD,&H20
1040 DATA &H0D,&H0A
1050 DATA &HBF,&H16,&H01,&HBE,&H80,&H00,&HBA,&H0A,&H0A
1060 DATA &H31,&HC0,&H31,&HDB,&H46,&H8A,&H1C,&H80
1070 DATA &HEB,&H30,&H78,&H23,&H80,&HFB,&H0A,&H7D
1080 DATA &H1E,&HF6,&HE2,&H00,&HD8,&H88,&HDE,&HE2
1090 DATA &HE9,&H38,&HD6,&H74,&H03,&HE8,&H18,&H00
1100 DATA &H8A,&H2E,&H16,&H01,&H8A,&H0E,&H15,&H01
1110 DATA &HB8,&H00,&H01,&HCD,&H10,&HCD,&H20,&H38
1120 DATA &HD6,&H74,&HE4,&HE8,&H02,&H00,&HEB,&HDF
1130 DATA &H88,&H05,&H4F,&H81,&HFF,&H14,&H01,&H74
1140 DATA &HDF,&H31,&HC0,&H88,&HD6,&HC3
1150 DATA &H29E5
```

Listing 1. *CRL.BAS will turn your cursor on a 'big' computer into a blob, or anything else you desire. You enter and run the Basic program which will create a file called CRL.COM which you then run directly from Dos.*

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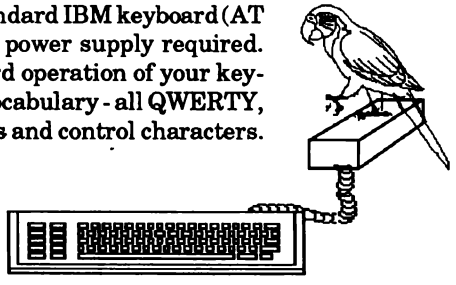

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desire. You enter and run the Basic program which will create a file called CRL.COM which you then run directly from Dos.

Written by John R. Herzfeld of the Washington district of Merton Island, the CRL.COM program will give you the default new cursor, which is twice as thick as the normal shape (start=10, end=13). If you want a different shape, type CRL or CRL.COM, then a '/' or a space, then the decimal start value, then any noncontrol alpha character (space OK) as separator, then the decimal end value, followed by Enter. If you omit the end value, you'll get the default end value (13).

The values to be used are the same as those for the Locate command in Basic. For example, if you have the monochrome display and type CRL 12 1 Enter, you will get a two-line cursor at the bottom and another two-line cursor at the top. The programmed default values are for the monochrome display and different ones are needed with the color adapter.

To change the default values in the program, change the bytes in line 1020 *and* in line 1040. On each line, the *first* value is the *end* value, and the *second* value is the *start* value. The reversed positions are due to the way the PC stores data in memory. If you change a default value, you must also recompute the checksum (the total of all 102 byte values) and change it in line 1150.

After you have created the CRL.COM file, you need the Basic program as listed only as a reference or to create additional files with other default values. The program is very tolerant and ignores excess separator characters or an excess number of value entries. CRL 12 1 and CRL 12TTTgg00001x9y produce the same result.

Well, that's fine, but it doesn't help me on the portable. I still want to make the cursor bigger so that it stays in the new shape when running WordStar and other programs. If you can help, please let me know.

```
'MATHS WIZARD
'WIZARDPC.BAS
CLS
PRINT "FOLLOW THESE STRUCTIONS,"
PRINT "AND PRESS (ENTER) AFTER"
PRINT "YOU'VE CARRIED EACH ONE OUT."
GOSUB 110
GOSUB 100
PRINT "START BY MULTIPLYING"
PRINT "YOUR AGE BY TWO..."
INPUT a$
GOSUB 100
PRINT "NOW ADD FIVE TO THAT..."
INPUT a$
GOSUB 100
PRINT "NOW MULTIPLY THAT BY 50..."
INPUT a$
GOSUB 100
PRINT "NOW SUBTRACT 365 FROM THAT..."
INPUT a$
GOSUB 100
PRINT "NOW ADD THE AMOUNT OF CHANGE"
PRINT "(IN CENTS) IN YOUR POCKET..."
INPUT a$
GOSUB 100
PRINT "NOW GIVE ME THE NUMBER"
PRINT "YOU'VE ENDED UP WITH..."
INPUT a
a=a+115
b=INT(a/100)
a=a-100*b
GOSUB 100
PRINT "YOU HAVE";a;"CENTS CHANGE..."
GOSUB 110
PRINT "AND ARE";b;"YEARS OLD."
END
'**********************
100 'DELAY, CLS, PRINT
CLS
110 PRINT:PRINT:PRINT
FOR z = 1 TO 4000:NEXT z
RETURN
```

```
10 REM MATHS WIZARD
20 REM WIZARD.BAS
30 CLS:REM HOME on Apple II
40 PRINT "FOLLOW THESE INSTRUCTIONS,"
50 PRINT "AND PRESS (ENTER) AFTER"
60 PRINT "YOU'VE CARRIED EACH ONE OUT."
70 GOSUB 400
80 GOSUB 380
90 PRINT "START BY MULTIPLYING"
100 PRINT "YOUR AGE BY TWO..."
110 INPUT a$
120 GOSUB 380
130 PRINT "NOW ADD FIVE TO THAT..."
140 INPUT a$
150 GOSUB 380
160 PRINT "NOW MULTIPLY THAT BY 50..."
170 INPUT a$
180 GOSUB 380
190 PRINT "NOW SUBTRACT 365 FROM THAT..."
200 INPUT a$
210 GOSUB 380
220 PRINT "NOW ADD THE AMOUNT OF CHANGE"
230 PRINT "(IN CENTS) IN YOUR POCKET..."
240 INPUT a$
250 GOSUB 380
260 PRINT "NOW GIVE ME THE NUMBER"
270 PRINT "YOU'VE ENDED UP WITH..."
280 INPUT a
290 a=a+115
300 b=INT(a/100)
310 a=a-100*b
320 GOSUB 380
330 PRINT "YOU HAVE";a;"CENTS CHANGE..."
340 GOSUB 400
350 PRINT "AND ARE";b;"YEARS OLD."
360 END
370 REM **********************
380 REM DELAY, CLS, PRINT
390 CLS
400 PRINT:PRINT:PRINT
410 FOR z = 1 TO 1000:NEXT z
420 RETURN
```

Listing 2. The Maths Wizard program will give you a number of difficult commands to follow, such as 'multiply your age by two' and 'take away the number of grandmothers you first thought of'. Then, after much mucking about, it will tell you, and the whole world, not only how old you are, but also how much change you have in your pocket. Aren't Amstrad computers wonderful?

You're a Wizard

FINALLY, THIS month, we have a little bit of nonsense I've written for those Amstrad users running Basic2 under GEM. I've also included a 'vanilla' version of the program if you want to run it under Basic2, or on the 6128 (or even on an Apple or some other alien machine). The Maths Wizard program will give you a number of difficult commands to follow, such as 'multiply your age by two' and 'take away the number of grandmothers you first thought of'. Then, after much mucking about, it will tell you, and the whole world, not only how old you are, but also how much change you have in your pocket. Aren't Amstrad computers wonderful?

We'll be including 'Your Amstrad' in future issues of *YC*. □

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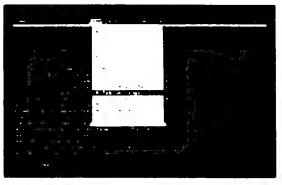

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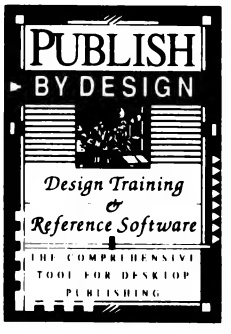

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PETER PHILLIPS

Graphics in, graphics out

THERE WAS A time when graphics meant drawing on the screen with a joystick, or as technology advanced, with a Koala Pad. Thesedays, the Macintosh reigns supreme when it comes to using a mouse, and the IIGS has kept the old and new traditions alive by combining the qualities of the Apple II series and the Macintosh range.

As this month's edition of *YC*, is largely about devices that input or output graphical data in combination with a computer, I'm devoting this column to the same topic. Unfortunately, some of the devices and applications I'm describing are not yet readily available in Australia, and in nearly all cases, I'm reporting second-hand. It's easy to get review copies of software, but hardware is another case, and I have to rely on information supplied by various sources. So, here's a run-down on some of the many peripheral devices that in one way or another fall into the category of either a graphics input or a graphics output device for the IIGS.

There is an incredible amount of graphics software for the IIGS, but software that supports a specific graphics application hardware device is not so plentiful. Typical input devices that interface directly to the IIGS are the laser disk, CD-ROM player, scanner, or a video cassette recorder. Other devices such as a video camera require a separate card, and the software to drive the card is usually built into the card. Output devices include a slide projector, a printer, OHP presenter and so forth.

Two packages that I have already reviewed (see separate box) are ShowOff and VCR Companion, both from Broderbund. I've included ShowOff in this line-up as it can operate a carousel-type slide projector via the serial port. VCR Companion, as the name suggests, interfaces with a VCR and allows the user to create sequences that can enhance an existing video.

Two other software packages that I know of, but have not seen in action, are Video Link and Viva. The first provides access to video laser players from within another software program, and the second is an interactive video authoring system. Both these programs are from Knowledgeware, PO Box 2292, Paso Robles 93447 CA.

Apple has just released (through AAPDA) a New Desk Accessory (NDA) that roughly falls into our category of 'graphics in'. The NDA is called the IIGS Video Keyboard, and is designed to allow those who, through some disability, cannot use a conventional keyboard, but who can use a mouse or any other alternative adaptive input device. The NDA, once installed, is accessible through any IIGS program that uses the standard interface, and produces a graphical representation of the keyboard on the screen. Pointing (with the mouse) at a key on the screen has the same effect as pressing that key on the keyboard, and anything a keyboard user can do, can be done with the NDA.

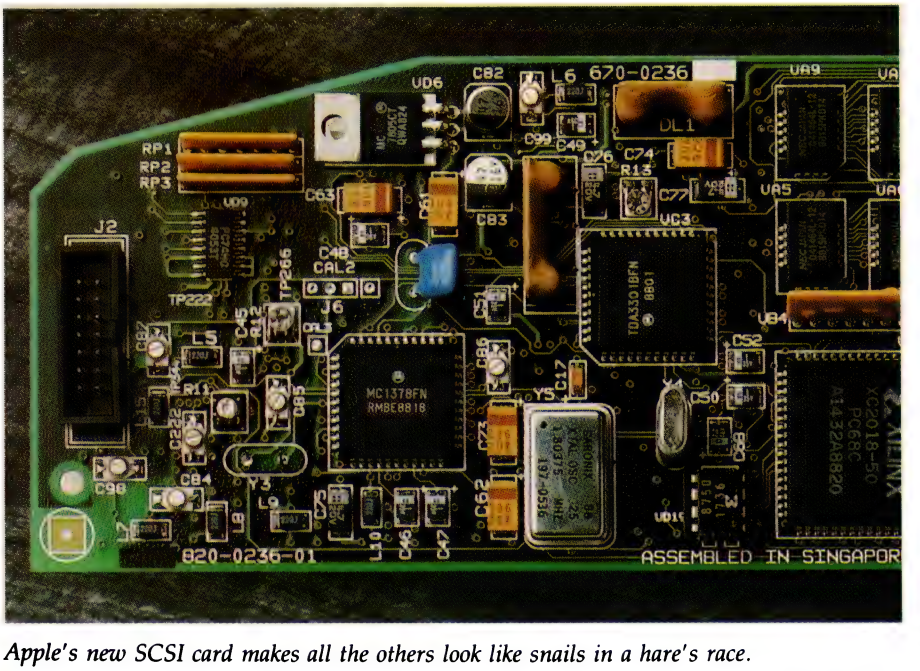
Scanners

A POPULAR means of getting a picture into a computer is with an optical scanner. The two main categories of scanners are the handheld and the flat bed. The latter is much more expensive, although the quality is usually better. There are currently two scanners available that work with the IIGS – ThunderWare's ThunderScan and the Quickie, from Vitesse. The ThunderScan is designed to fit in the place of the ribbon in an Imagewriter printer, and the Quickie is handheld.

From what I have read, the ThunderScan gives better results than the Quickie, but it is more difficult to use. It plugs into the games port on the IIGS, and the software drives the Imagewriter printer which holds the image being scanned. A scan can take up to five minutes, and there is provision to select the format (hi-resolution, double hi-resolution, 320 or 640 mode super hi-resolution) and the dots per inch (be-

IIGS graphics interfacing software

ShowOff – reviewed *YC* April '89, page 141
VCR Companion – reviewed *YC* August '89, page 138
Video Link – see this article
Viva – see this article
Video Keyboard NDA – see this article



Apple's new SCSI card makes all the others look like snails in a hare's race.

tween 40 and 300). Because it ties up the games port and the printer, the ThunderScan is not suited to being permanently installed, and it can only scan a single page at a time. If you want something from a book, it has to be photocopied first, although the glossy surface of a book can cause problems that require it to be photocopied anyway.

The Quickie, like most handheld scanners on the market today, is manufactured by the Japanese company Omron, and requires an interface card that plugs into any IIGS slot except slot 3 or 4. Because it uses its own interface, the Quickie can be left connected all the time. Software for the Quickie is either with a standalone IIGS program or with a NDA, which allows the user to scan directly into most IIGS paint programs. The scanner is simply rolled slowly over the image, and the image appears almost immediately on the screen. Visual or audible feedback is provided if the scanner is moved too quickly, which should be at around 25mm per second.

The US addresses for further information are: ThunderWare, 21 Orinda Way, Orinda 94563 CA, and Vitesse, 13909 Amar Rd, Suite 2, La Puente 91746 CA. The prices are US$299 for the Quickie and US$219 for the ThunderScan.

Snap Shot video card

WHEN APPLE released their Video Overlay card in 1989, it unleashed a tool that was ideally suited to the IIGS. I wrote about this card in September's issue, and described it as a card that allows a video signal to drive the IIGS monitor in parallel with the video output signal from the IIGS computer. The idea is to create graphics on the screen from a IIGS paint program and to superimpose it over a video signal from a VCR, a video camera or whatever. This way, an external video signal can be enhanced with text or computer graphics for educational, entertainment or sales promotion purposes. But the big cry was 'I want to be able to modify the picture from the video source as well'.

Although details are sketchy (Apple Australia don't even have the full details yet) I have been told that an additional card has been developed that works with the Video Overlay card. This new card, called Snap Shot, can capture a full video frame into the IIGS memory and allow the user to save it as a file to disk. Thereafter, it's up to you and your favorite paint program. In operation, an external video source is applied, and when the desired frame appears, a button is pressed causing the frame to be stored in memory.

Ideally, a picture from a VCR in pause mode or an input from a video camera would be used, but a moving picture doesn't create a problem as only one frame is captured from the signal. Although a PAL version of the Video Overlay card is available, the Snap Shot card is reported to be only NTSC as yet. And, it's one of the many new products to watch out for.

For some years now, Apple IIe users have been able to input a still video signal into the memory of a IIe by using a product called ComputerEyes. Like Snap Shot, this card allows the signal to be stored in RAM and then saved to disk for a subsequent treatment with a suitable graphics program. A IIGS version of this card has now been released, called ComputerEyes IIGS, although once again, I don't have all the details.

Unlike Snap Shot, the card can only deal with still pictures, although the uses are still quite numerous. This device is really a type of scanner, except the scanning is done with a camera. The new version supports color, but still only NTSC. It seems the demand for a PAL version is perceived by the developers as being insufficient, as yet, to warrant such a card.

However, because of its enhanced graphics capabilities, the IIGS version gives a much better display than the IIe version (ComputerEyes/2), and photographs, diagrams from books, or pictures from sales brochures and the like, can all be read into the computer and dressed up as required. For further information on this product contact Digital Vision, 270 Bridge St, Dedham 02026 MA. The price is around US$250.

Apple's Video Overlay card allows IIGS graphics to be superimposed over images from a video cassette recorder. Another card, called Snap Shot, interfaces with the Video Overlay card and lets the user capture a single frame of video information into the IIGS memory and save it to disk.

High-speed SCSI interface

APPLE HAS recently released their new SCSI card, which makes all the others look like snails in a hare's race. But what's this got do with the subject at hand? Apparently the card is so fast that it can load graphics into the IIGS memory at around 30 frames a

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second. That's almost as fast as the frame rate for a movie! A few figures will show just how quick the data from disk is transferred. Using a hard disk interfaced with a conventional SCSI card operating with System 4.00 (or less), the data transfer rate was limited to around 16K per second (bps). Under System 5 (and later), this rate was improved to 64K bps. With the new card also operating with System 5 drivers, the speed is now up to 1Mb per second, and by any standards, that's fast.

The card uses the Direct Memory Access (DMA) method of pipelining the data from the hard disk to the IIGS RAM, and loading six modules of Appleworks GS takes only 13 seconds, compared to around a minute with the previous card. So now, you can fill up your hard disk with graphics and create a movie – not just a slide show. The price is $245 (the same price as the conventional SCSI card) and drivers that support a CD-ROM are provided on a disk that comes with the card.

Getting graphical data into the computer is one thing, but how about getting it out? There are two products to mention, well . . . one's not so much a product as an enhancement to existing software. I'm referring here to an Imagewriter LQ printer driver for the IIGS. OK, I know, there already is one – it says so in the control panel for System 5. But, this driver doesn't take full advantage of the 214 dpi capability of the LQ printer, and is really only an Imagewriter II driver with some changes. Apple hope to release an all-new LQ driver in the near future, perhaps even by the time this magazine reaches the streets. It will support full color (for a color ribbon of course), and use the LQ printer like we haven't seen before. By the way, if you haven't noticed already, the price of the Imagewriter II is now down to $895, including tax.

Graphics hardware devices

Apple Video Overlay card – see *YC* September '89, page 123
ComputerEyes IIGS video card – see this article
Thunderscan scanner – see this article
Quickie scanner – see this article
Snap Shot video card – see this article
Apple high-speed SCSI interface – see this article
Kodak 4800 OHP presenter – see this article

Another graphical output device is the Kodak 4800 Data Show overhead projector pack which is an LCD display that sits on top of an overhead projector (OHP) that allows the IIGS screen to be shown in panavision via the OHP. This product operates via an adapter from the video output socket on either a Macintosh (SE) or the IIGS. The sockets for these two computers are different, but the electronics is much the same and the only difference is the plug.

Like most of these devices, the Kodak 4800 displays black and white only, but it supports grey scales.

IIGS Sales address

IN THE June issue of *YC*, I referred readers to GS Sales and Imports for some of the software I reviewed. Since then, the company has moved to the Gold Coast. Their new address is 3 Turramurra Dr, Robina Waters 4226 Qld, (075) 529 099. Gold Coast readers who can call in personally will be able to take advantage of the demonstration lounge, which features a large screen video, and facilities to try out the latest IIGS software. □

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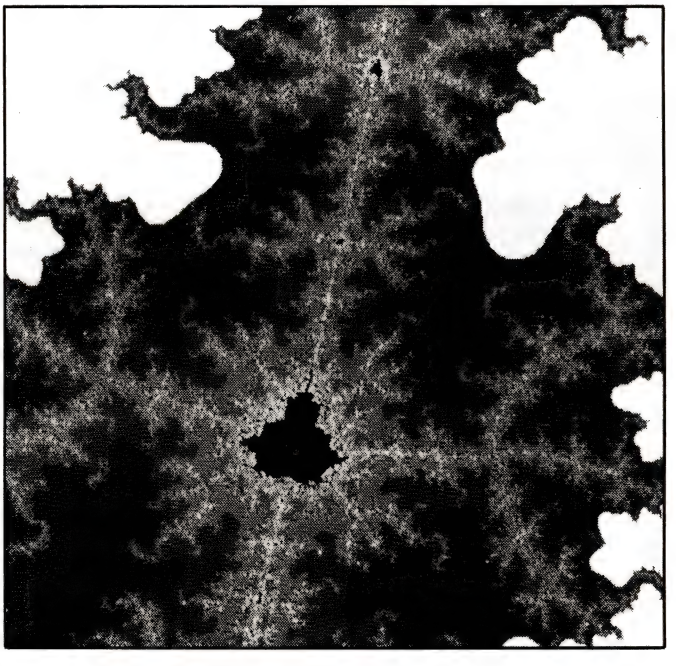

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A monthly treatise by PC expert Vern V. Shrunkle. JP. GIO. B.ed (Retired); Ex Boxer; Breaststroke coach for district seven senior Olympics team; Survivor of 1990 37-hour Famine appeal ***(Darryl Tonkins, your sponsorship money is well overdue!)***

PCs for Blokes

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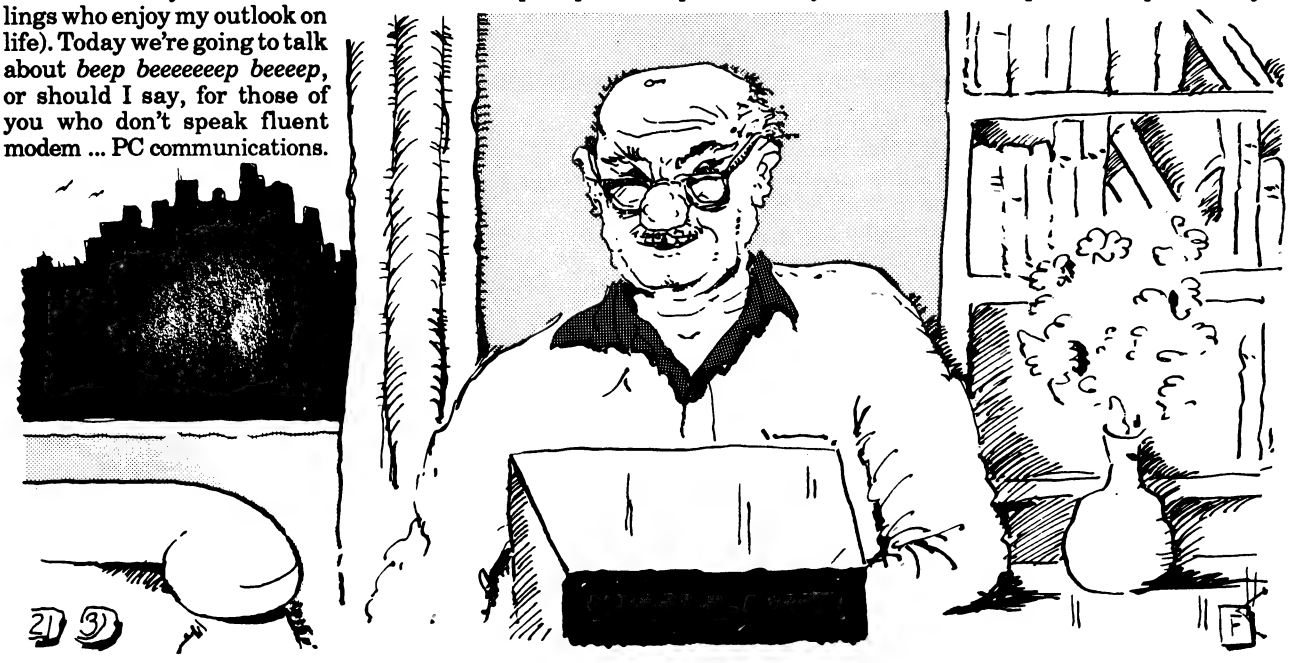
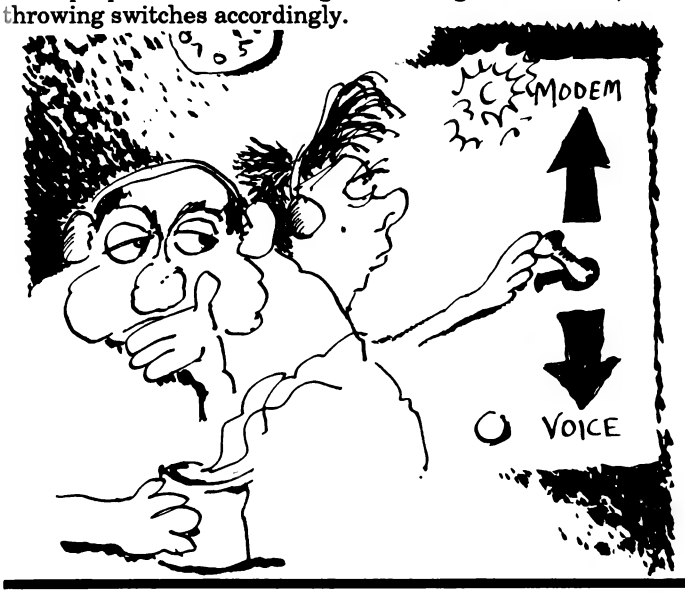
(Re-told and illustrated by Foote and Mowth)

G'day blokes and blokesses (cause I've met a few of you little darlings who enjoy my outlook on life). Today we're going to talk about *beep beeeeeeep beeeep*, or should I say, for those of you who don't speak fluent modem ... PC communications.

You might ask 'why use your PC to connect to the outside world?' I certainly did as Charlie Chong down at the local Chinese take-away and PC spare parts shop sold me my first modem cum plastic chopstick recycler.



And you might have wondered how those old telephone lines know the difference between people talking and computers whistling. I wondered that too, until I worked out that they have people at the exchanges listening to the calls, and throwing switches accordingly.

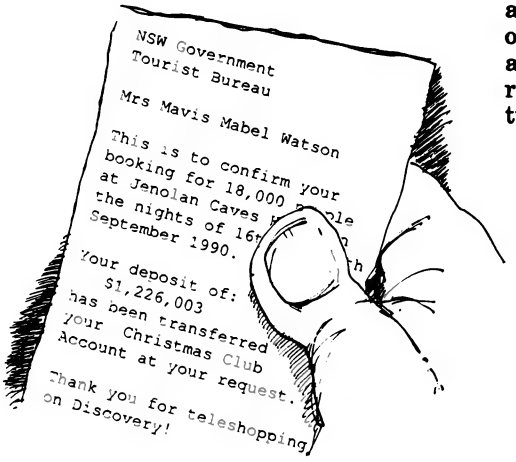


The first thing you'll want to do is join a service like Discovery from Telecom. I say that because I reckon if a dozen of you join up then they'll have double the ... but that's another wrong number. What Discovery lets you do is buy a modem, a PC and a phone line, then pay a membership fee (I reckon you've spent around $5000 by now) and THEN you ring up Discovery and in ten minutes find out exactly what the Austrian Schikkelgruber is worth in our money today.

Then you can book an overseas holiday, buy a few thousand Bond shares, become the new President of Peru and send a fax to your Grandma — all before bath time. (But don't let dad know you've been using his Bankcard again.)

What's this then? Yes, it's my electronic holiday booking confirmation. Two nights for 18,000 people at Jenolan Caves house. Oops ... I don't remember ordering the second night!

I must ask the bowls club committee if they can find a few more buses, not to mention pensioners!

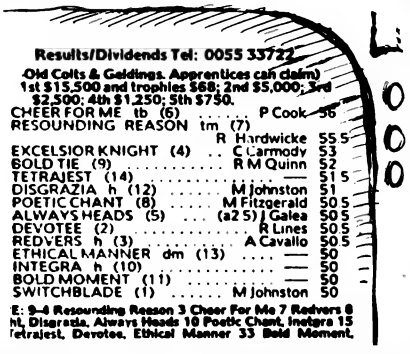


Next, we have the PC fax card. A wonderful intervention as used by our beloved editor Mr Ambrose J. Kennedy (late of HMP Kuttingal.). Why, with a $6000 PC, a $1000 monitor, a $6000 laser printer and a $1000 fax card, you can partially replace a $900 fax machine. **And** you can blow your signature up to full-screen size after you've scanned it in!

Back to the modem. Let's try a little experiment. Boris down at the disposals store gave me this number to try. Let's see. 0011-1-555-555-1234. Dialling .... Answering ... User name ... Password ... Welcome to SratDef 5 ... What city do you wish to target with cruise missiles ... WHOOOPS!

Dial into NASA for weather forecast. Much more interesting than Brian Bury, but a little inaccurate for Bendigo. I really should stay away from this one, fellas, cause just between you and me I think I accidentally brought the Hubbel space telescope back to earth last week.

Now I'm gonna show you all about what we experts call EFT or electrical funds thingy thing whatsit. That's where I get my computer to talk to the bank's computer to pay my bills. Works a treat and I've been doing it for months. I really must open an account with that bank.

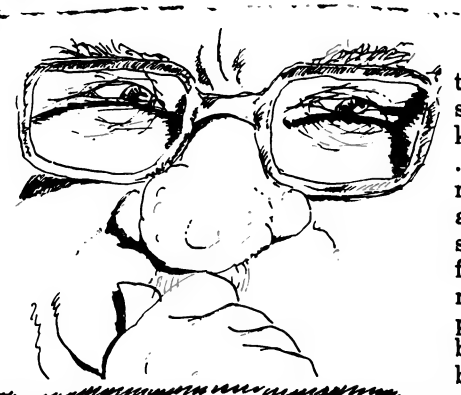


Results/Dividends Tel: 0055 33722

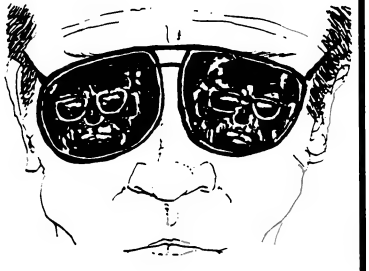
Old Colts & Geldings. Apprentices can claim) 1st $15,500 and trophies $68; 2nd $5,000; 3rd $2,500; 4th $1,250; 5th $750.

CHEER FOR ME tb (6)	P Cook	56
RESOUNDING REASON tm (7)	R Hardwicke	55 5
EXCELSIOR KNIGHT (4)	C Larmody	53
BOLD TIE (9)	R M Quinn	52
TETRAJEST (14)	—	51 5
DISGRAZIA h (12)	M Johnston	51
POETIC CHANT (8)	M Fitzgerald	50 5
ALWAYS HEADS (5) (a2 5)	J Galea	50 5
DEVOTEE (2)	R Lines	50 5
REDVERS h (3)	A Cavallo	50 5
ETHICAL MANNER dm (13)	—	50
INTEGRA h (10)	—	50
BOLD MOMENT (11)	—	50
SWITCHBLADE (1)	M Johnston	50

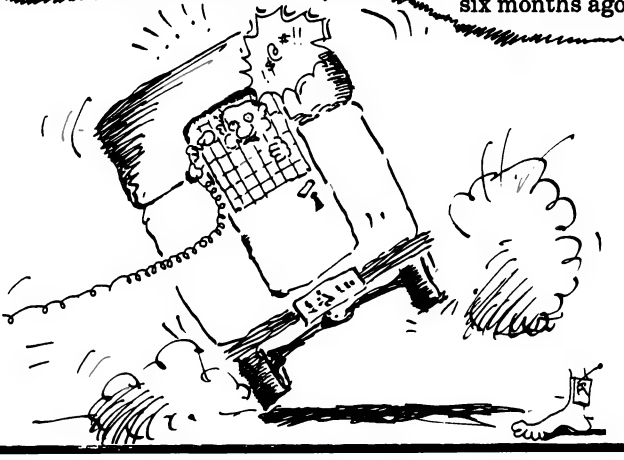
E: 9-4 Resounding Reason 3 Cheer For Me 7 Redvers 8 ht, Disgrazia. Always Heads 10 Poetic Chant, Integra 13 Tetrajest, Devotee, Ethical Manner 33 Bold Moment.

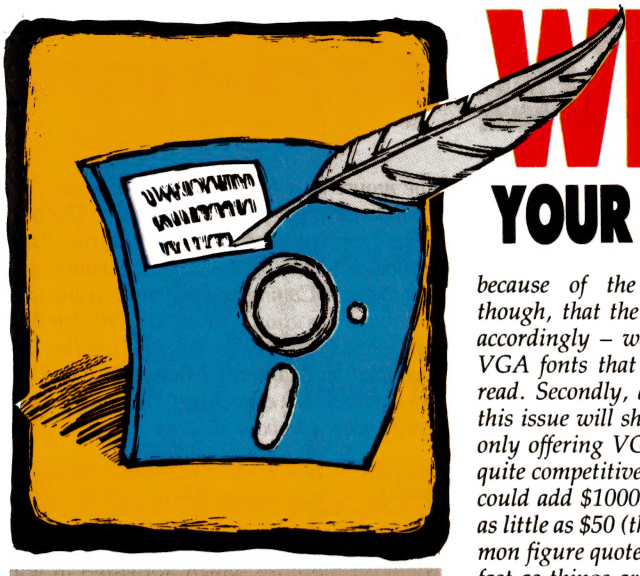


Just who is that Mrs Watson anyway? I know one thing ...she's got less money in her account than she did when I found this phone number and password on the back of a library book on crochet six months ago.



"I am Detective Inspector Dogg. We have reason to believe that you, Mrs Mavis Mabel Watson, have been illegally purchasing gold bullion and paying for it on your gas bill. You will accompany us to the station. Anything you type may be copied onto another disk, placed in the public domain and used in evidence against you ....."





WRITE BYTES

YOUR COMPUTER READERS' FORUM

Here's your chance to air your view or gripe about the computer industry, or to ask about a problem you've been unable to solve. Letters may be edited for space or legal reasons. Write to: ***Write Bytes, Your Computer, PO Box 227, Waterloo 2017 NSW.***

Is VGA value?

I READ MARK Cheeseman's 'Add-On Atlas' in the May issue with some interest. (I loved the realistic touch in the opening photograph.) My business is a small accountancy practice in which I've been using an old 20Mb AWA Corona PC. The article interested me at the time because I had been thinking about 'adding-on' to the old 'clunker', but now I've decided to buy a new computer. For the amount of adding-on I would have to do to make the AWA into what I want, that seems to be the most economical path. But, Mark's article certainly helped me to make up my mind about the exact configuration I want. After looking at various accounting and spreadsheet packages. I've decided on a 40Mb AT-compatible with 2Mb of RAM (brand will depend on price, I think), but I can't decide on the type of color monitor. Do I even need color? My eyes get very tired using my old amber monitor, so I want the easiest on the eyes. VGA is the newest and looks 'sharpest', but adds to the price in most cases. Is it worth the money? Is the 'high-resolution' that important?

Paul Wauchope
Melbourne, Vic.

We'd recommend VGA for several reasons: First, you'll find it easier on the eyes simply because of the higher resolution; note, though, that the VGA screen font can vary accordingly – we've seen some very wispy VGA fonts that aren't particularly easy to read. Secondly, a glance through the ads in this issue will show that many suppliers are only offering VGA and their prices are still quite competitive. Twelve months ago, VGA could add $1000 to a system, now it can be as little as $50 (though $500 is the most common figure quoted in ads). Another point: as fast as things are changing in the computer world, it doesn't do any harm to have the latest, if it's been as well-received as VGA (IBM-world graphics were generally pretty crumby until its appearance).

To answer your other questions: whatever spreadsheet and accountancy packages you settle on, they will probably have been written to take advantage of a color monitor. That means, in most cases, they will be easier to read in color; for example, menu-highlights will standout more and error messages will be easier to spot. In your work, it's unlikely the higher resolution of VGA is going to be that important, unless you move into presentation graphics (for the reasoning there, see page 21 in Mark's article).

New and worthless

FOUR MONTHS AGO I bought a new XT for $1600. About two weeks ago, it 'lost' its hard disk – no matter what I did, it wouldn't recognise the C: drive. I rang the dealer and he said to bring it in. After I did, he gave me the news: $800 to replace the hard disk and controller. I thought I was covered by a 12-month warranty – isn't that the law? What can I do; it's practically a new computer, but it's worthless as it is.

C. Parks
Bankstown, NSW

Ouch! It's not the law, but it should be. There's not much you can do – if the warranty reads 'three months', that's that. For the rest of our 'purchasing public': do not accept less than a 12-month's warranty; the companies that take their quality seriously are offering 2- and 3-year warranties on PCs, with on-site service in many cases. The same is also true of items like monitors and printers. Generally, the problem does not lie with the dealers themselves: In 'Industry Updates' in our June issue we reported that the Australian Computer Dealers Association was recommending a dealer boycott of manufacturers not offering at least a 12-month warranty on hardware; in many cases the manufacturers warranty is dated at shipment from the factory, so by the time the goods are sold, a large part of the warranty period has past.

Waste by computer

'WASTE BY COMPUTER' in the May issue brought back memories for me. Two years ago I went to work for the head office of a large real estate company. Management had decided that computers were the secret to efficiency, but had never put anyone in charge of 'computering'. Each department was given a budget and told to find the system that would work best. About the time I arrived, the two juniors in the accounts department had been replaced with two much-higher paid staff with 'computer experience' (unfortunately, neither knew anything about the fancy spreadsheet the accountant had decided on, so there was a mess in the accounts department for a few months). The secretarial staff had bought Macs, since desktop publishing was one of their priorities; the sales staff had IBMs because of the beaut contact-manager they had discovered. An extra secretary had to be added for the re-keying of figures, tables and reports – everyone had a computer and was churning out reports, analyses, projections and comparisons like crazy. Even within departments, there was re-keying because operators didn't know how to, say, export part of a stock spreadsheet so it good be used in a wordprocessed stock order. 'Waste by Computer' – I've seen it! (Incidentally, the company survived after paying me $30,000 as a consultant to sort the mess out.)

G. R.
Adelaide, SA

$30,000? There's a lesson in that, but I'm still thinking about it.

Extended or expanded?

I HAVE A 10MHz 640K AT and would like to add extra memory to it (primarily for simple desktop publishing, but I am also interested in graphics). I've asked several computer dealers which is the best way to do it, but I seem to get left behind with all

WRITE BYTES
YOUR COMPUTER READERS' FORUM

the jargon. Is there a difference between 'extended' and 'expanded' memory; if so, which should I go for?

Sam Wella
Blacktown NSW

You haven't been reading YC *every month, Sam! Stewart Fist cleared up the techno-talk on memory in our May issue – 'Extended, expanded, enhanced EMS, expansion memory – what does it all mean?' If you want to understand the different specifications and how they relate to software and speed, it's excellent to read; see the Services Page on how to obtain back issues. The short answer to your question is add extended memory to your motherboard; quoting Stewart on upgrading a PC like yours: 'It is always faster to use EMS emulation software and the motherboard extended memory for EMS, than add-in expanded memory.' Also, watch for 'IBM Memory Management Part 1' in our August issue – it gives a detailed look at how PCs use different types of memory, why the current confusion has arisen, and what the future holds. Unless you have the most basic of DTP packages, though, I'd query whether or not you're going to be happy with the XT: it will be slow.*

What am I missing?

MY COMPANY HAS recently supplied me with a modem to use with my laptop. While I've only used it to communicate with work, I've been wondering about computer bulletin boards. I've dialed up several, but most of them want me to leave my name, address and phone number – I get enough junk mail already, and besides, I don't like the idea of publicising my address that way. I have looked through a few boards as a visitor, but I haven't seen enough to want me to participate. I've often heard other users enthusing about bulletin boards – am I missing something?

Bob Wilson
Drummoyne, NSW

First off, your 'personal' details are required by the bulletin board operator for the protection of his board and other users – the sysop is letting strangers mess around on thousands of dollars worth of PC, not to mention the hundreds of hours of time that is invested in most systems. I know of no system operator in Australia who has ever made use of the bulletin board's membership list in the way you suggest – I don't think you need worry about junk mail from that source.

Are you missing something? Well, that's hard to say and depends on your interests more than anything else. There is probably a bulletin board someplace in the world that caters for just about everyone – I know the 400-odd boards in Australia cover almost every field of interest from ecology and programming to sex and other games. The best way to get started is to join a bulletin board – I suggest a local FidoNet board (these are listed in our 'National BBS Listing' each month).

Keep it up!

SOMEBODY PINCHED my June issue when I took it into work – could you please give me the name of the local supplier of Minix? It sounded as if it might offer a solution to a problem we have here at work. While I'm writing, I'd just like to say how good I've found *Your Computer* over the years. From the articles and your editorials I can see that here is an Australian PC magazine that's interested in local users. It really irks me to see all those other magazines calling themselves 'Australian this or that', but then list at the front of the magazine 10 articles that were previously printed overseas. Keep it up!

S. Thompson
Applecross, WA

Thanx, S., we sure will! For information on Minix contact Minix-Info, PO Box 177, Riverstone 2765 NSW. The operating system itself is available from Prentice-Hall – check a local bookshop that carries a large range of computer books; if that is fruitless, Prentice-Hall can be contacted on (02) 939 1333.

Mouse for Windows

ON YOUR recommendation, I bought a BMC cordless mouse. I have been trying to use it with Windows/286 – I have it installed on the system as Microsoft-compatible and it has worked fine with every other application I've used it on. When I start Microsoft Windows, there is no mouse cursor and when I try installing the mouse under Windows, I get the message: BMCMOUSE.PIF not found. Can you help? Windows isn't much good without a mouse.

Andy Kennedy
Rosebery, NSW

No it's not – I can't understand companies bragging about bundling Windows and then not bundling a mouse. Anyway . . . I had the same problem. Re-run Setup and install the mouse as a Mouse Systems Mouse. The command to fire it up is 'mouse3'. The only other problem I've found with the BMC mouse is that occasionally, the mouse and the Norton Commander seem to argue over the cursor location, but clicking the left button sorts it out – this happens whether it's installed as Mouse or Microsoft. I find the cordlessness so convenient, that I've never really worried about it.

Understanding memory . . .

WE READ WITH interest Stewart Fist's article on memory, which appeared in your May issue. It was one of the clearest expositions of the issues surrounding expanded and extended memory we have seen in the computer press. However, we were surprised by a comment in the second paragraph in which Stewart notes that he spoke with a number of technicians about accelerator cards and the 640K restriction and found none who really understood the topic. It is a pity Stewart did not contact Hypertec. As the only Australian designer and developer of a complete range of both accelerator boards and expanded/extended memory boards, Hypertec has a very deep level of expertise in both of these areas . . . We would have been only too happy to discuss in depth the technical issues with Stewart. Hypertec prides itself on the quality of its technical support effort. We are able to sustain the quality of the support because the R&D team is based here in Australia. If any of your readers have further questions about memory, we would be only too happy to assist them

David Evans
Commercial Director, Hypertec

Stewart was taking the part of a 'confused user' and surveying the type of reply someone off the street would get if they walked into a shop selling memory cards – in almost every case, after several questions, the sales person would fetch a technician from the back room and Stewart was commenting on the level of expertise he found at the general retail level where any card you wanted would be sold or installed to a user, but the advice as to which card was the right one, was often wrong. His statement was only to illustrate how poorly the topic is understood, even by those in the industry who should know better. We meant no slight to the expertise of manufacturers, Australian or otherwise, and particularly not to an award winner such as Hypertec (readers: refer to our June 'Industry Updates'). □

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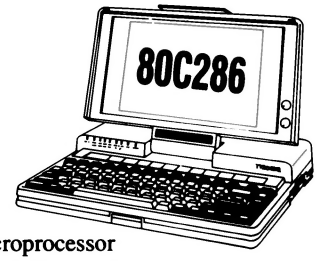

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